

1 *Communication*

2 **Extreme Overvalued Beliefs**

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13 Abstract:

14 Psychiatry needs operational definitions to appreciate differences seen in idiosyncratic, psychotic
15 thinking, and shared subcultural beliefs or ideologies. Carl Wernicke first described overvalued idea in
16 1906. The concept has been applied to describe it as a motive in mass shootings and terrorism. We review
17 the concept of overvalued idea and extreme overvalued belief as a basis for making the distinction
18 between delusions and non-delusions.

19 Keywords: psychosis; delusion; over valued idea; terrorism; mass shootings; violence; forensic psychiatry

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21 Psychiatry lacks operational definitions to differentiate idiosyncratic, psychotic thinking from
22 shared subcultural beliefs or ideologies. Rigidly-held non-delusional beliefs are an important
23 aspect behind the motive for many global and homegrown violent and terrorist attacks (1). The
24 fact that no particular sociodemographic information has been found to be associated with this
25 often aberrant behavior requires new strategies to be developed. Terrorism is a behavior that

26 comes with enormous direct and indirect costs- lost lives, expensive counter-terrorism
27 programs, political division, loss of civil liberties, and psychological disorders (2). A literature
28 search on the topic of primary prevention of terrorism and mass shootings reveals strikingly little
29 scholarly academic work by psychiatrists. Media often erroneously report a terrorist attack as
30 based on delusional thinking, obsessional thinking or psychosis. This article reviews the concept
31 of over-valued idea, first defined by Carl Wernicke and later applied to terrorism as an important
32 area of psychopathology with important implications for both forensic evaluations and primary
33 prevention of terrorism and mass shootings.

34 **Extreme Overvalued Beliefs**

35 There has previously been a lack of agreement as to what precisely constitutes an over-
36 valued idea (3). Consensus regarding definitions is helpful to facilitate research and the
37 development of innovative strategies. In 2016, our group of forensic psychiatrists (Rahman,
38 Resnick, Harry) at the American Academy of Psychiatry and the Law introduced the term
39 *extreme overvalued belief* to describe the rigidly held non-delusional beliefs that Breivik
40 (Norwegian terrorist), McVeigh and Nichols (Oklahoma City bombing) as well as the 9/11
41 terrorists held during their respective attacks (4). We defined *extreme overvalued belief* to
42 differentiate it from prior definitions of overvalued idea:

43 **An extreme overvalued belief is one that is shared by others in a person's cultural,**
44 **religious or subcultural group. The belief is often relished, amplified and defended**
45 **by the possessor of the belief and should be differentiated from an obsession or a**
46 **delusion. The idea fulminates in the mind of the individual growing more dominant**
47 **over time, more refined and more resistant to challenge. The individual has an**
48 **intense emotional commitment to the belief and may carry out violent behavior in**
49 **its service. It is usually associated with an abnormal personality (4).**

50 This definition expands on what was first described as *Ueberwerthige Idee* (overvalued
51 idea) by Carl Wernicke in *Gundriss der Psychiatrie* (1906) and later invoked by then
52 psychiatrist-in-chief Paul McHugh at Johns Hopkins in response to the 9/11 terrorist attacks (4).
53 FBI trained forensic behavioral specialist Matt Logan also discusses this concept in *Lone Wolf*
54 *Killers: A Perspective on Overvalued Ideas* (5).

55 Wernicke is honored by having his name describe a type of aphasia, but his psychiatric
56 contributions have largely been neglected. *Gundriss der Psychiatrie* was recently translated
57 from German into English. In his classical description of overvalued idea, Wernicke stated that
58 “special conditions must prevail before such overemphasis takes on an aberrant character.
59 Normally there is contradictory evidence, which gradually corrects any overvaluation. For
60 aberrant overvaluation however, these counterarguments, demonstrably, are no longer
61 available.” He went on to describe that overvalued ideas can seem completely normal; yet the
62 way an individual is treated can determine whether they *acquire* an aberrant character
63 (emphasis added). Wernicke’s examples include people who commit suicide after loss of a
64 fortune, after being sentenced to dishonorable punishment, or after the death of a loved person
65 (6). Wernicke’s description captures the behavioral profile described by FBI profilers as the
66 common motive of many mass shooters, terrorists and assassins that act in an unpredictable
67 and aberrant fashion (7). Psychologists, economists, and others have not found a specific
68 personality profile or a situational condition (e.g., poverty, political oppression, lack of sufficient
69 education) that explains terrorism. Such behavior does not often meet the classic personality
70 disorder criteria seen in criminal psychopathology such as antisocial personality disorder, but
71 instead are often described as having some psychosocial problems in their background (8).

72 Two things have changed quite dramatically since Wernicke described overvalued idea
73 in 1906- access to information (particularly online) and access to much more lethal types of
74 weapons. Applying Wernicke’s concept to the development of extremism, a pathway to

75 violence can be drawn in the following three steps: 1) there are a core set of beliefs normally
76 shared by others in their culture/ subculture. 2) As the individual views progressively more
77 extremist information and has a lack of contradictory information, reinforcement and refinement
78 of the extreme beliefs occur 3) Additional amplification is acquired and coupled to the use of
79 violence in its service.

80 British and American texts of psychiatry have clearly differentiated obsessions, delusions
81 and overvalued ideas from each other. Karl Jaspers believed that delusions were from a mental
82 illness and that overvalued ideas stemmed from personality features. To confuse matters, the
83 DSM-5 and DSM-IV have a vague and difficult to trace definition of overvalued idea. They
84 describe it as being “less than delusional intensity” and **not** shared by others in their cultural or
85 subcultural group. The definition does not appear at all in any of the earlier DSM series. This
86 places the current definition as the exact opposite of Wernicke’s definition which states that it is
87 a belief **shared** by others (4). This confusing array of definitions may have contributed to the
88 lack of growth seen in this area of scholarly work and lead to our group’s development of
89 “extreme overvalued belief” based on definitions from Wernicke’s original work.

90 **Myths about Mass Murderers**

91 Meloy has written extensively about the biological and psychodynamic understanding of
92 psychopathy (7). He recently described the “seven myths of mass murder” and describes how
93 the public and professionals are unaware of the facts surrounding many high profile cases. For
94 example, these individuals often have meticulous planning and do not just “snap.” Also, there is
95 no clear way of easily be dividing them into “psychopaths, psychotics, and depressives.” This
96 can make the screening of such individuals a difficult challenge for counter-terrorism efforts.
97 Personality disorders in mass murderers are often a vague mixture of antisocial, paranoid,
98 narcissistic, and schizoid traits (9). Databases recording mass shootings and global acts of
99 terrorism exist. Despite this, epidemiological studies have been limited in their ability to provide

100 answers to this issue. Structured risk assessment instruments are also limited. Reliable and
101 validated data do not currently exist (8). Research findings on the link between acts of violence
102 and mental illness vary widely because study designs, sampling frames, operational definitions,
103 and comparison groups also vary widely.

104 Delusions are commonly encountered symptoms for mental health professionals to
105 evaluate. A delusion is usually defined as a fixed, false and idiosyncratic belief. Delusions are
106 usually associated with other psychotic symptoms and the impaired individual thereby often
107 becomes apparent to others. Individuals with Capgras delusions (that a person such as a close
108 relative is replaced by an imposter) and persecutory delusions are often associated with a
109 propensity towards violence. Most patients with psychosis are victims, not perpetrators of
110 violence. As delusions improve with medication and psychotherapy, the individual usually
111 becomes less prone to violence (4). By way of contrast, an individual with an extreme
112 overvalued belief *shares* beliefs with the rest of his culture or subculture, making it 1) more
113 difficult to identify as a potential threat and 2) requiring a different strategy from delusions to
114 neutralize them.

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118 **Eating Disorders and Overvalued Ideas**

119 In order to better understand Wernicke's amplification of ideology from overvalued ideas,
120 it may be useful to examine the most widely studied type of behavior stemming from them-
121 *eating disorders*. The concept of overvalued idea has been widely used to describe eating
122 disorders, particularly in the British literature. The negative body image and cognitive distortions
123 seen in eating disorders amplify in the mind of the individual, growing more dominant and form a

124 powerful driving force behind starvation and excessive exercise, even to the point of death.
125 Selective eating patterns also occur in which patients will limit their food intake to a narrow
126 range of preferred foods. Attempts to widen their repertoire of foods is met with resistance and
127 counter-arguments. The behavior is slow to develop and individuals do not suddenly develop
128 eating disorders (10). This parallels the restriction of ideology and amplification that is seen in
129 violent behavior stemming from extreme overvalued beliefs (4).

130 **Online Eating Disorder Data**

131 Peer and media effects can contribute to the worsening of eating disorder behaviors by
132 intensifying previously held rigid beliefs regarding weight and eating. A meta-analysis showed
133 that pro-eating disorder websites have a large effect on refining and amplifying the dysfunctional
134 body image and eating habits seen in eating disorders. In a Stanford cross-sectional study of
135 698 families of patients (aged 10–22 years) diagnosed with an eating disorder, forty-one percent
136 of patients visited pro-recovery sites, 35.5% visited pro-eating disorder sites, 25.0% visited
137 both, and 48.7% visited neither. Of those that visited pro-eating disorder sites, 96.0% reported
138 learning new weight loss or purging techniques. The authors concluded that pro-eating disorder
139 website visits were prevalent among adolescents with eating disorders, and that parents had
140 little knowledge of this (11). This parallels the reports from family members of some radicalized
141 terrorists and mass murderers that reported not knowing that they had viewed radical internet
142 content. Eating disorder treatment units are equipped with a comprehensive treatment strategy
143 including group therapy that challenges patients' dysfunctional narrative thereby extinguishing
144 maladaptive behaviors. Research on the impact of censorship/criminalization of pro-eating
145 disorder websites has concluded that it further isolates and insulates the eating disorder
146 sufferer. Banning the use of these websites may in fact worsen the behavior - users migrate to
147 other, more secret websites, and the extreme overvalued beliefs begin to hold more valence.
148 Instead, balancing the pro-eating disorder content with pro-recovery content may be a more

149 effective strategy. For example, in 2012 the Instagram made some hashtags unsearchable and
150 disabled accounts that promoted eating disorders. Studies found that pro-eating disorder
151 hashtags actually multiplied as people instead used deliberately misspelled hashtags like
152 #anorexique to circumvent banned terms. Instagram later released a tool where users could
153 anonymously flag a photo they deemed concerning for an eating disorder. Instagram will send
154 the user a note of support along with directions to resources where they can get help. This may
155 serve as an effective model for preventing online extremism (12).

156 **Countering Violent Extremism**

157 Countering violent extremism (CVE) is a broad phrase that covers a wide array of
158 approaches that have been advanced to reduce the radicalizing effects of extremist narratives.
159 Under the Obama administration, the U.S. developed a Strategic Implementation Plan for
160 Empowering Local Partners to Prevent Violent Extremism. It has three objectives: involve (1)
161 enhancing federal community engagement efforts related to CVE, (2) developing greater
162 government and law enforcement expertise for preventing violent extremism, and (3) countering
163 violent extremist propaganda (13).

164 Several programs in Muslim states (Saudi Arabia, Iraq, Yemen, Indonesia, Singapore)
165 have utilized de-radicalization programs carried out by moderate Muslim clerics who engaged
166 detainees in a theological dialogue about what they portrayed as a correct interpretation of
167 Islam (14). In response to growing right-winged extremism, Canada has begun to consider
168 similar counter-extremist narratives, building on the strengths and expertise of diverse sectors in
169 society (15).

170 The internet is of increasing interest to countering violent extremism efforts during recent
171 years. Attempts have been made to classify and identify extremist social media messaging
172 using linguistic features such as offensive terms to discriminate hate and extremism promoting

173 messages from other messages (16). To better understand how a radicalized individual begins
174 to amplify his beliefs, an examination of the way the internet utilizes individual consumer
175 information for advertising is helpful. Digital advertisers have used small computer files called
176 cookies and now use canvas fingerprinting to detect the subtle differences in the rendering of
177 text to extract a consistent fingerprint that can easily be used without the consumer's
178 awareness. Publishers place paid advertising on their websites and mobile applications to
179 provide customers tailored products or services (17). The information can help, for instance, to
180 find more books by an author they enjoy reading or have a movie title suggested to them based
181 on interest in a topic. The information is honed and tailored over time to accurately detect and
182 influence shopping habits (18). A similar feedback effect occurs with online information
183 searches. Persons searching radical material on an online video may receive progressively
184 more similar radical content with additional videos and social media newsfeeds (19).
185 Refinement of online eating disorder and consumer shopping consumption parallels extremist
186 consumption of radical ideology which Wernicke described as growing in the mind of the
187 individual, becoming more dominant and resistant to challenge.

188 **Form and Content of Beliefs in Threat Assessment**

189 The form and content of beliefs are important in discussing psychiatric definitions. The
190 form of belief can be a delusion, obsession or overvalued idea. The content of the belief is also
191 of relevance to determine the risk of violence towards others. Just as there is an increased risk
192 of violence with certain types of delusions and not others, there is also an increased risk of
193 violence with some overvalued ideas. Overvalued ideas involving body image and weight create
194 self-destructive forces, whereas extreme overvalued beliefs may create violent behavior. For
195 example, a person that holds a delusion that he is Jesus likely has a lower propensity towards
196 violence than a person with persecutory delusions of being stalked by his neighbor (4).
197 Similarly, a woman with an overvalued belief that she is overweight may develop a propensity

198 towards anorexia, while a man with extreme overvalued beliefs might carry out a “lone wolf”
199 terrorist attack.

200 **Mass Suicides, Cults and Obedience to Authority**

201 When beliefs are shared by others, idiosyncratic beliefs can become normalized (20). In
202 a study of 343 psychiatric outpatients who described themselves as religious, participants were
203 asked to give their view of a demonic causality of their illness. A high prevalence of such beliefs
204 was not only found in schizophrenic patients (56%) but also in non-delusional patients: affective
205 disorders (29%), anxiety disorders (48%), personality disorders (37%) and adjustment disorders
206 (23%). The authors concluded that demonic influence should be interpreted against the cultural
207 and religious background which is shaping causal models of mental distress in the individual
208 (21). Occasionally, these rigidly held non-delusional beliefs can become amplified and
209 overvalued by an individual or group leading to extreme behavior in its service.

210 The greatest episode of deliberate loss of American lives prior to 9/11 was the mass
211 suicide of 909 inhabitants (304 children) of Jonestown, Guyana from cyanide poisoning in 1978.
212 Reverend Jim Jones, founder of the People’s Temple instructed his followers to commit suicide
213 while spreading rigidly held beliefs of intelligence organizations conspiring against the Temple.
214 Similarly, 39 followers of Heaven’s Gate died in a mass suicide in California in 1999. They held
215 rigid non-delusional beliefs that their suicides would allow them to exit their “human vessels”
216 allowing their souls to go on a journey aboard a spaceship they believed to be following comet
217 Hale–Bopp. Some men in the group underwent castration in preparation for their “afterlives.”
218 The Aum Shinrikyo cult attacked a Tokyo subway with sarin nerve gas in 1995, killing nearly a
219 dozen people and injuring nearly 5,000 (22). Studies show that a majority of persons entering
220 cults do not necessarily exhibit psychopathology and that current cult members appear
221 psychologically well-adjusted generally, and demonstrate few conspicuous symptoms of
222 psychopathology (23).

223 On the surface many individuals hold what appear to be idiosyncratic beliefs:
224 conspiracies involving assassinations of leaders, extraterrestrial life, UFOs, etc. In some rare
225 cases, individuals relish, amplify and defend these beliefs to the point of harm towards
226 themselves and others. American astronauts have been stalked by individuals claiming that the
227 moon landing was faked. Astronaut Buzz Aldrin punched a man in self-defense from a moon-
228 hoax believer that was forcing him to “swear on the Bible” that he walked on the moon (24).
229 Parental concerns about perceived vaccine safety issues, such as a purported association
230 between vaccines and autism, though not supported by a credible body of scientific evidence,
231 led increasing numbers of parents to refuse or delay vaccination for their children. The most
232 frequent reason for non-vaccination stated by 69% of the parents in one study, was concern that
233 the vaccine might cause harm (25).

234 In 1983, the American Psychological Association created The Task Force on Deceptive
235 and Indirect Techniques of Persuasion and Control to investigate whether “brainwashing” or
236 coercive practices played a role in recruitment by new religious movements. The task force
237 report was ultimately rejected because it “lacked scientific rigor” and the association decided
238 that it did not have sufficient information available to take a position on this issue (26).

239 Stanley Milgram, interested in the Jewish Holocaust, studied obedience to authority
240 figures with a series of experiments. In his 1974 article, *The Perils of Obedience* he stated that
241 “ordinary people, simply doing their jobs, and without any particular hostility on their part, can
242 become agents in a terrible destructive process. Moreover, even when the destructive effects of
243 their work become patently clear, and they are asked to carry out actions incompatible with
244 fundamental standards of morality, relatively few people have the resources needed to resist
245 authority.” He went on to create an “agentic” theory in which the essence of obedience consists
246 in the fact that a person comes to view themselves as the instrument for carrying out another
247 person's wishes, and they therefore no longer see themselves as responsible for their actions.

248 In the online world, authority figures can also be a powerful destructive force. Milgram's
249 experiment may explain why it is not uncommon for terrorists to view videos of charismatic
250 figures online and subsequently carry out violent behavior in the service of extreme overvalued
251 beliefs (27).

252 **Violent True Believer**

253 Psychiatry usually begins when a person seeks help from a psychiatrist for a problem or
254 symptoms- most terrorists and mass shooters don't do this. Violent extremists hold their own
255 beliefs to be superior to the beliefs of others and may be anchoring a bias. Anchor bias or
256 focalism is a type of cognitive bias in which a person relies too heavily on one trait or piece of
257 information when making decisions (28). Reid Meloy, in response to the 9/11 attacks, submitted
258 a description of a "violent true believer" to the Behavioral Analysis Program of the FBI. The
259 purpose of the advisory paper was to marshal psychological knowledge concerning "the violent
260 true believer" and his homicidal-suicidal state of mind. The violent true believer is an individual
261 committed to an ideology or belief system which advances homicide and suicide as a legitimate
262 means to further a particular goal (29). This body of literature overlaps with the definition of
263 extreme overvalued belief.

264 **Social Transmission of Beliefs**

265 Research has also shown that people on the political extremes are more likely to
266 perceive large partisan differences and political polarization and to be intolerant of people with
267 different political beliefs (28). A study of 61 million facebook users demonstrated that the online
268 world can affect a significant real-world behavior on a large scale. They revealed that the effect
269 of social transmission on real-world voting was greater than the direct effect of the messages
270 themselves, and nearly all the transmission occurred between 'close friends' who were more
271 likely to have a face-to-face relationship. These results suggest that strong ties are instrumental

272 for spreading both online and real-world behavior in human social networks (30). Ecker reported
273 that people are reluctant to correct misinformation in their memories if it fits in with their political
274 beliefs. His study offered some solutions which could easily be adapted to online search
275 engines and newsfeeds. For example, providing people with a narrative that replaces the gap
276 left by false information and focusing on facts to highlight, rather than the myths (31). Extreme
277 and false beliefs are now considered a new cyber- weapon used by extremists and even by
278 foreign powers during elections (32). Further study may help elucidate the use of internet and
279 search engine functions to identify and neutralize extremist and false narratives using what has
280 been learned about online amplification and overvalued ideas from past online and psychiatric
281 experience (33).

282 **Conclusion**

283 The available literature regarding the psychiatric and psychological nature of violent
284 extremism will require new definitions and strategies to counter it. Ultimately, terrorism and
285 mass shootings are behaviors- ones with a large magnitude of effects. Extreme overvalued
286 belief, derived from the work of earlier psychiatrists, may prove important in the nosology for
287 motives behind many acts of terrorism and mass shootings. The definition is needed to aid
288 in the development of a differential diagnosis during criminal responsibility evaluations and
289 for the development of new evidence based research tools. Similar to psychiatry's
290 experience with eating disorders, it is likely that merely attempting to ban extreme/radical
291 content would be ineffective and encourage further secrecy and extremism. Instead,
292 providing viewers of extreme content with alternate material containing a contradictory,
293 factual message may help to decrease the development of extreme overvalued beliefs.
294 Social transmission (person to person) is a more effective tool and the production of
295 counter-narrative messages could be created to serve two functions: 1) Prevent the user
296 from progressing to further extremist ideology through time (amplification of beliefs) and 2)

297 disrupt the extremist messaging through counter narratives (dilution of beliefs). A number of
298 possibilities may be useful and combining them may prove more effective. Advisory panels
299 from different cultural, political. Medical, ethical and religious groups could provide needed
300 counter-narratives. Large scale public awareness could be used to interrupt the social
301 transmission of psychopathology of overvaluation seen in mass murders, acts of terrorism,
302 mass suicides, avoidance of immunizations, etc. Further public health initiatives must be
303 created to prevent extremism. Public awareness of getting the facts and not discarding them
304 in favor of false or overvalued ideology is important. Harnessing the power of the internet to
305 produce internet tools for counter-narratives and automated fact checking may be useful to
306 research. The education needed would be similar to ones used in eating disorders, tobacco
307 products, alcohol, firearms and seat belt laws. All are now seen as effective primary
308 prevention programs. For this to occur, it is first critical for psychiatry to agree upon a term
309 for non-delusional rigidly held beliefs which is shared by others.

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