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## The Operational Development and Empirical Testing of the Terrorist Radicalization Assessment Protocol (TRAP–18)

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### ABSTRACT

The Terrorist Radicalization Assessment Protocol (TRAP–18) is a structured professional judgment instrument for threat assessment of the individual terrorist. It is a rationally derived theoretical model comprising eight proximal warning behaviors and 10 distal characteristics. Empirical research on the TRAP–18 is reviewed, including both nomothetic and idiographic studies of individual terrorists in both the United States and Europe. Mean interrater reliability is 0.895 (Cohen’s kappa), ranging from 0.69 to 1.0. Evidence of criterion validity has been demonstrated, including usefulness of the instrument across various extremist ideologies (jihadism, ethnic nationalism, and single-issue), and its ability to discriminate between thwarted and successful attackers. The instrument appears to advance the domain recommendations of Monahan (2012, 2016) for the risk assessment of the individual terrorist. The TRAP–18 is further discussed as a threat assessment instrument for mental health clinicians. The limitations of the current research provide direction for further studies to assess its reliability and construct, discriminant, and predictive validity.

### ARTICLE HISTORY

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Five years after the London terrorist bombings in July 2005, we<sup>1</sup> were sitting in the hotel bar of the Marriott Kensington contemplating two questions that remained unanswered: Why did violence risk research as a body of work make no distinction between affective (emotional, reactive) and predatory (instrumental, targeted) modes of violence? Given this fact, if such a distinction were to be made, are there specific warning behaviors related to instrumental, or predatory violence, that could be formulated and studied?

We continue to be at a loss to answer the first question. Perusal of virtually all violence risk instruments, including the Historical-Clinical-Risk (HCR–20 V3; Douglas, Hart, Webster, & Belfrage, 2013) and the Violence Risk Appraisal Guide (VRAG Revised; Harris, Rice, Quinsey, & Cormier, 2015), continue to make no such distinction between predatory and affective violence, nor recommend it be considered during an evaluation. Even if one argues that such distinctions make no difference in the risk *assessment* of individuals, it is difficult to mount an argument, for example, that risk *management* would be no different when comparing an emotionally explosive and dyscontrolled young man being released from an acute hospital, and a mass murderer who had carefully planned his killings over the course of months, and was now returning to society after years in a forensic hospital.

The importance of this distinction has been urged by various researchers, but typically not by those engaged in the study of violence risk assessment. Blair, Mitchell, and Blair (2005) wrote, “It is important to distinguish between reactive and

instrumental aggression because they are mediated by separate neurocognitive systems ... reactive aggression is the final form of the animal’s response to threat ... instrumental aggression is goal-directed motor activity; the aggression is used to achieve a particular goal” (p. 13). Raine (2013) wrote, “homicide is nuanced. Yes, there is a cerebral basis to violence. And yes, the prefrontal cortex is one of the culprits. But even among the tiny proportion of us who kill there are differences. ... The brain anatomy of murder is color-coded on a reactive–proactive aggression spectrum” (p. 78). Viding and Frith (2006) wrote, “Sadly, the distinction between premeditated predatory and reactive impulsive violence is lacking in many behavioral genetic and imaging genomics studies” (p. 6086).

There have been some clinical inroads, with researchers, psychiatrists, and psychologists arguing for the inclusion of this distinction when violence is being evaluated (McEllistrem, 2004; Meloy, 1988, 2006; Siegel & Victoroff, 2009; Siever, 2008). Instrumentation has been developed and validated for the retrospective measurement of reactive and instrumental violence, most notably in the observational measure of Woodworth and Porter (2002) and the self-report measure of Kockler, Stanford, Nelson, Meloy, and Sanford (2006) and Stanford, Houston, Villemarette-Pittman, and Greve (2003).

Given the strong empirical foundation for a distinction between affective and predatory violence (Meloy, 2012), and despite its absence in contemporary violence risk research, we embarked on a rational-theoretical formulation of risk indicators, what we came to call *warning behaviors*, for predatory

(instrumental) violence. The concept of warning behaviors within the threat assessment literature was not new, but a typology that organized and defined them was (Meloy, Hoffmann, Guldemann, & James, 2011).

### Identifying proximal warning behaviors

The proximal warning behaviors were theoretically designed to differentiate intentional behaviors that were closely related in time to the violent act rather than other, more chronic and distant characteristics correlated with general violence (e.g., a history of violence and drug abuse); and to correct for the examiner's tendency to focus on a discrete variable and facilitate a more wide-angle view by capitalizing on our natural ability to see patterns and organize stimuli. Pattern analysis has its roots in gestalt psychology (Koffka, 1921; Kohler, 1929; Wertheimer, 1938) and capitalizes on our normal cognitive perception to organize bits of detail into meaningful patterns. For example, read this sentence:

*I cn rd ths wrds wtht ny vwls whch s qt sprnsng.*

We were also buoyed by other contemporary research that emphasized the importance of dynamic, rather than static, variables for the prediction of short-term violence risk (Gray, Snowden, & MacCulloch, 2004; McNeil, Gregory, & Lam, 2003; Nicholls, Brink, Desmarais, Webster, & Martin, 2006). The warning behavior typology (see later) was constructed by identifying and contemplating patterns of data and theoretical formulations across the entire writing and research on targeted and intended violence, discussions with colleagues who do threat assessment, and the casework experience of the authors over the past several decades. The warning behaviors were first discussed in several journals and monographs (Hoffmann, Meloy, Guldemann, & Ermer, 2011; Meloy, 2011; Meloy & O'Toole, 2011; Meloy et al., 2011), and subsequently the definitions were slightly tweaked to yield a typology in its current form; data gathering for the coding of these behavioral patterns ideally consists of a combination of direct interview of the subject, collateral interviews with those who know the subject well, and evidence generated independently of the subject, such as police investigative reports, prior psychiatric and psychological reports, school reports, probation reports, and so on. In many cases, however, a direct interview of the subject might be neither possible nor wise, and the data gathering will rely on an indirect personality and behavioral assessment (Meloy, 2004). The focus is on current behaviors of concern, the core of "threat assessment," and not the traditional mental health approach of a diagnostic formulation through the development of psychological inferences, often based on fairly remote historical data (Meloy & Hoffmann, 2014). Each indicator is coded as present, absent, or insufficient data. The typology consists of the following proximal warning behaviors.

*Pathway warning behavior* is research, planning, preparation for, or implementation of an attack. This first warning behavior combines the concept of a *pathway* for targeted violence (Fein & Vossekuil, 1999) with the late-stage markers formulated by Calhoun and Weston (2003). When there is evidence of these behaviors, it indicates that the person of

concern (POC) has moved into operational space and there is intent to be violent. A recent problem in counterterrorism work is the increased brevity of pathway behavior and the weaponizing of common household and family items, such as knives and cars. In some cases, "the pathway has become a runway" (Meloy & Pollard, 2017, p. 1).

*Fixation warning behavior* is an increasingly pathological preoccupation with a person or a cause, accompanied by a deterioration in social life, occupational life, or both. The work on fixation evolved from the Fixated Research Group, funded by the Home Office in London, to investigate threats to the British Royal Family and other political figures. This project spanned 5 years, and resulted in a number of scientific publications between 2004 and 2010,<sup>2</sup> among them Mullen et al. (2009), which focused on the fixated and their pursuit of public figures.

Fixation is a preoccupation of thought, usually on a person or a cause. A simple key to the presence of a pathological fixation—beside the deterioration in work and love—is the disjuncture between the social setting in which it is voiced and the fixation itself. In virtual reality, the more intense the fixation, the greater the number of constant social media postings for others to see. For instance, when they accelerate, there is usually increased perseveration, stridency, negative characterization of those who oppose the cause, or an angry emotional undertone (Meloy et al., 2011).

*Identification warning behavior* is a psychological desire to be a pseudocommando (Dietz, 1986) or have a warrior mentality (Hempel, Meloy, & Richards, 1999); closely associate with weapons or other military or law enforcement paraphernalia; identify with previous attackers or assassins; or in the case of the individual terrorist, identify oneself as an agent to advance a particular cause or belief system. We have discussed this warning behavior in detail (Meloy, Mohandie, Knoll, & Hoffmann, 2015), including its roots in A. Freud's (1966) identification with the aggressor, and the concept of identity in the history of psychoanalytic thought (Erikson, 1950). Simply put, fixation is what one constantly thinks about; identification is what one becomes. In the context of terrorism, the key is a shift from fixation to identification, as the pathological preoccupation metamorphoses into a self-identity (e.g., a soldier for ISIS).

*Novel aggression warning behavior* is an act of violence that appears unrelated to the intended act of concern and is committed for the first time; it is typically done to test the subject's ability to carry out his or her act of violence. This warning behavior is difficult to discern and easy to miss. However, the testing of one's ability to be violent could be critical to the subject moving into operational space. MacCulloch, Snowden, Wood, and Mills (1983) referred to this as a *behavioral tryout* in the context of the sexually sadistic offender, and Hull (1952) would likely define our term as a measure of motivation to act on the environment.

*Energy burst warning behavior* is an increase in the frequency or variety of any noted activities related to the target, even if the activities themselves appear relatively innocuous,

<sup>2</sup>All of these papers are available as PDF files at [drreidmeloy.com](http://drreidmeloy.com).

usually in the weeks, days, or hours before the attack. Social media activity will usually decrease during this period of time.

This warning behavior cannot be assessed unless a baseline of general activity for the person of concern has been established by the threat assessor. Energy burst is a notable increase from baseline, and is likely due to the POC running out of time to complete all necessary tasks before implementing his or her attack—rather than a psychiatric disturbance such as manic acceleration. Virtual reality presence (social media) during this brief period before an attack will likely decrease due to encryption to enhance secrecy—two of the most common applications at the time of this writing are Telegram and WhatsApp—or actual time limitation due to final preparations in terrestrial reality.

*Leakage warning behavior* is communication to a third party of an intent to do harm to a target through an attack (Meloy & O’Toole, 2011); the third party might be an Internet audience or any social media audience. In the context of psychotherapy, this could prompt a legal obligation on the part of the mental health professional to warn the third party, law enforcement, or both.

This warning behavior is the Achilles’ heel of the lone actor terrorist and others intending to engage in targeted violence. A majority of such individuals will leak their intent to third parties, lone actor terrorists more frequently than nonideologically motivated mass murderers (Horgan, Gill, Bouhana, Silver, & Corner, 2016). Motivations vary greatly, and tend to evolve around vulnerabilities created by a narcissistic sense of impunity or various anxieties. The paradox is that most attackers will leak their intent, and most persons of concern with no intent will also engage in leakage. This is exacerbated by the subsequent reluctance of third parties to report following knowledge of a leak, a likely derivative of the bystander effect, a validated phenomenon from social psychology that individuals are less likely to help in an emergency when others are present—or perceived as being so (Darley & Latane, 1968). The threat assessment risk with leakage is that the assessor becomes complacent due to the frequency of false positives he or she encounters.

*Last resort warning behavior* is evidence of a “violent action or time imperative” (Mohandie & Duffy, 1999). It might be a signal of desperation or distress. Often it is the result of an unexpected triggering event, or one that is anticipated, that involves a loss in love or work. The subject believes he or she has no other choice and must act now. Sometimes there is no external triggering event, yet the subject imposes on himself or herself the necessity of action through various psychological defense maneuvers, often narcissistically colored, such as characterizing oneself as the last man standing, or the only one with the courage to act. This is a pattern of behavior that might contain within it “final acts” (Calhoun & Weston, 2003, 2016): The subject will complete tasks that suggest he or she believes his or her life is about to end, such as giving away possessions, settling debts, or closing bank accounts. It has also been referred to as “end of tether” behavior (James, MacKenzie, & Farnham, 2014).

*Directly communicated threat warning behavior* is the communication of a direct threat through any means to the target or law enforcement beforehand. Although directly communicated threats are quite infrequent among those who

engage in targeted violence of any kind, including terrorism (< 20%; Meloy & Hoffmann, 2014), they always warrant active investigation because they might turn out to be true positives: In a few cases they are actually signaling an intent to act. We found this to be the case in one out of five lone actor terrorists (Meloy & Gill, 2016). The paradox is that research among approachers and attackers of public figures, for example, indicates that a directly communicated threat might actually reduce the likelihood of an attack when analyzed as group data (Meloy & Hoffmann, 2014). The operational issue, however, is that one cannot afford to be wrong when conducting a threat assessment, and therefore the default position should always be that all direct threats are taken seriously.

### **Empirical validation of the warning behaviors**

The typology of warning behaviors was a rationally derived theoretical model that needed to be empirically validated. We first tested its criterion validity by applying it through an uncontrolled descriptive pilot study to an unusual and small sample: 14 nonterrorist attackers of public figures in Germany (Hoffmann et al., 2011). This sample was selected because it was convenient, and extant research indicated that virtually all public figure attacks were instrumental (predatory; Meloy, Sheridan, & Hoffmann, 2008). The results were positive, with seven warning behaviors all present (last resort was not coded), most frequently pathway (93%), fixation (100%), identification (57%), and least frequently directly communicated threat (7%). In one third (36%) of the cases where identification was present, it was related to a right- or left-wing radical political ideology, foreshadowing the importance of identification among lone actor terrorists.

The original hope of the warning behavior typology was to develop a means by which *all* acts of targeted or intended violence—not just acts of terrorism—could be mitigated through these proximal correlates. Therefore, our second study applied the warning behavior typology to diverse samples of attackers, including U.S. presidential and political attackers and assassins ( $n = 18$ ),<sup>3</sup> German school shooters ( $n = 9$ ), school threateners ( $n = 17$ ), and intimate partner homicide perpetrators ( $n = 70$ ; Meloy, Hoffmann, Roshdi, Glaz-Ocik, & Guldemann, 2014). Clearer patterns began to emerge with all warning behaviors present in each sample, with the exception of the school threateners who did not intend to attack. Fixation warning behavior was striking in its frequency (>78%) among all attackers regardless of target (political figures, classmates and teachers, or intimate partners) or whether or not they were ideologically motivated; and in earlier work fixation was found to have a strong relationship to lethality risk in attacks on European politicians (James et al., 2007). All of these studies were relatively small samples without any comparison groups, so no predictive inferences could be made. However, generalizability appeared promising.

An opportunity then emerged to do a study of targeted attackers with a comparison sample. The early literature on

<sup>3</sup>This was a subsample taken from Fein and Vossekuil (1999), where data were sufficient with additional research to code for the proximal warning behaviors.

targeted violence was replete with samples of attackers and their demographic and behavioral variables (Fein & Vossekuil, 1999; Hempel et al., 1999; Meloy, Hempel, Mohandie, Shiva, & Gray, 2001; O'Toole, 2000; Vossekuil, Reddy, Fein, Borum, & Modzeleski, 2000, 2002). Without any comparison or control groups, however, nothing could be said about such variables as risk factors for violence—although operationally they were often misunderstood as correlates or even predictors.

In the decade following the Columbine attacks in the United States, Germany experienced nine school attacks, all of which we indirectly studied. We also identified a nonrandom sample of convenience of German students in which there was some type of threatening or worrying communication they expressed, but on investigation there was no intent to mount an attack. Primary court records and investigative files were accessed, and cases were excluded in which interventions played any role whatsoever in preventing a student of concern from becoming an attacker. The final comparative sample of 31 students of concern and nine attackers was coded for the eight warning behaviors (Meloy, Hoffmann, Roshdi, & Guldemann, 2014). Pathway, fixation, identification, novel aggression, last resort, and energy burst were significantly more frequent in the attackers, with medium to large effect sizes ( $\phi = 0.43\text{--}0.88$ ). Both groups engaged in leakage warning behavior (90–100%), comparable to the leakage in a U.S. school shooting study (Vossekuil, Fein, Reddy, Borum, & Modzeleski, 2002). Once again, direct threats were infrequent: 11% in the German sample and 17% in the U.S. sample.

One case study applying the warning behaviors to a Norwegian mass murderer was also published (Meloy, Habermeyer & Guldemann, 2015), along with two studies of the empirical and theoretical foundations of leakage (Meloy & O'Toole, 2011) and identification (Meloy et al., 2015). The *FBI Law Enforcement Bulletin* also published a study of the warning behaviors applied to known cases of individual terrorists (Meloy, 2016).

## Identifying distal characteristics

My continuous immersion in the contemporary nonanalytic work on terrorism—which has become increasingly empirical over the past decade (Armstrong, 2000; Borum, 2011; Gibson, 1994; Gill, Horgan, & Deckert, 2013; Gruenewald, Chermak & Freilich, 2013; Lankford, 2013; Monahan, 2012; Sageman, 2004, 2008; Soufan, 2011; Stern, 2003) helped me crystallize what I conceived of as distal characteristics—more distant risk factors than the more immediate warning behaviors. The work of Monahan (2012) in particular was helpful for the risk assessment of the individual terrorist and contributed to the conceptual launch of the Terrorist Radicalization Assessment Protocol (TRAP-18). He elaborated on four problems: (a) the need for clarity as to what is being assessed; (b) the likely usefulness of structured professional judgment (SPJ); (c) the identification of robust risk factors within four domains: ideologies, grievances, affiliations, and moral emotions; and (d) the very low probability of prospective validation. In a follow-up chapter, Monahan (2016) reported on the positive advances since his earlier paper, and added the domain of “identities” to his four domains of risk. I invited Jessica Yakeley, my colleague who was a psychiatrist and

psychoanalyst with the Tavistock-Portman NHS Foundation Trust in London, to co-author what became the second foundational paper for the TRAP-18 (Meloy & Yakeley, 2014). The study yielded 10 distal characteristics of the lone actor terrorist. They should be rated on each characteristic, like the warning behaviors, as present, absent, or insufficient information to code. The methods of data gathering are the same as those outlined earlier for the proximal warning behaviors:

*Personal grievance and moral outrage* is the joining of both personal life experience and particular historical, religious, or political events. Personal grievance is often defined by a major loss in love or work, feelings of anger and humiliation, and the blaming of others. Moral outrage is typically a vicarious identification with a group that has suffered, even though the lone actor terrorist usually has not experienced the same suffering.

*Framed by an ideology* is the presence of beliefs that justify the subject's intent to act. It can be a religious belief system, a political philosophy, a secular commitment, a one-issue conflict, or an idiosyncratic justification. Beliefs are usually superficial and selected to justify violence.

*Failure to affiliate with an extremist or other group* is the experience of rejecting or being rejected by a radical, extremist, or other group with which the subject initially wanted to affiliate.

*Dependence on the virtual community* is the use of the Internet through social media, chat rooms, e-mails, listservs, texting, tweeting, posting, searches, and so on, for virtual interaction (e.g., reinforcement of beliefs) or virtual learning (e.g., planning and preparation).

*Thwarting of occupational goals* is a major setback or failure in a planned academic or occupational life course.

*Changes in thinking and emotion* is a pattern over time wherein thoughts and their expression become more strident, simplistic, and absolute. Argument ceases and preaching begins. Persuasion yields to imposition of one's beliefs on others. There is no critical analysis of theory or opinion, and the mantra, “Don't think, just believe,” is adopted. Emotions typically move from anger and argument to contempt and disdain for others' beliefs, to disgust for the outgroup and a willingness to homicidally aggress against them (Matsumoto, Frank, & Hwang, 2015). Violence is cloaked in self-righteousness and the pretense of superior belief. Humor is lost. Engagement with others in virtual or terrestrial reality might greatly diminish or cease once the subject has moved into operational space.

*Failure of sexually intimate pair bonding* is the historic failure to form lasting sexually intimate relationships. The sexualization of violence is a secondary component. It refers to the finding of a sexual attitude or behavior in the subject that appears to substitute for the absence of a sexual pair bond, such as the sexualization of weapons, the anticipation of unlimited sexual gratification in the afterlife, the exclusive use of prostitutes and other unbonded sources of sexual gratification, or compulsive use of pornography: All of these behaviors can be rationalized by the ideology (Meloy, 2018).

*Mental disorder* is evidence of a major mental disorder by history or in the present. The ideology might help to reduce anxiety surrounding the mental disorder or use the symptoms to advance the attack (e.g., suicidal thoughts and depression

become motivations for martyrdom; delusions of grandeur solidify commitment).

*Creativity and innovation* is evidence of tactical thinking “outside the box.” The planned terrorist act is creative (a major aspect has not been done before in contemporary times) or innovative (might be imitated by others).

*Criminal violence* is evidence of instrumental criminal violence in the subject’s past, demonstrating a capacity and a willingness to engage in predation for a variety of reasons, such as a history of armed robberies or planned assaults on others for material gain.

### Integrating the proximal warning behaviors and distal characteristics: The development of the TRAP-18

The genesis of the Terrorist Radicalization Assessment Protocol (TRAP-18) began with my work for both the FBI and other public and private entities, both directly and indirectly assessing terrorists<sup>4</sup> as lone actors or embedded in a group, over the past 25 years. Subsequent to the September 11, 2001, attacks, we defined the “violent true believer” as “an individual who appears to be committed to an ideology or belief system, whether secular or religious, that advances the killing of the self and/or others as a legitimate means to further a particular goal” (Meloy, Hempel, Mohandie, & Shiva, 2001, p. 8); and a theoretical typology of personalities subsumed by the term, violent true believer, was offered for operational use (Meloy, 2004, 2011; Meloy et al., 2001). Suggestions were also made for interviewing such subjects (Meloy & Mohandie, 2014). The psychodynamic roots of my thinking were embedded in the historical work of Menninger (1938), and Reik (1941), and the more contemporary psychoanalytic work of Post and Robbins (1997, 2007) and Volkan (1988, 2004). In particular, Menninger (1938) and Reik (1941) formulated theories concerning the unconscious sexual and aggressive motivations for martyrdom, and Post (1997, 2007) emphasized the developmental psychobiographies of individual terrorists from many different ideologies, including his own evaluations of Palestinian terrorists. Volkan (1988, 2004) continues to be one of the only psychoanalysts to probe the unconscious aspects of regression at the level of the state, what I term *poliregression*, and its contribution to war and genocide.

Monahan and Steadman (1996) also proposed a very helpful weather analogy for violence prediction in their landmark paper, “Violent Storms and Violent People: How Meteorology Can Inform Risk Communication in Mental Health Law.” They opined that, among other things, there is a usefulness to the meteorological terms, watch and warn, in both specificity and imminency when thinking about and communicating violence risk. It appeared that such an analogy could be very useful in the juxtaposition of the proximal warning behaviors and the distal characteristics for the TRAP-18. Any presence of a cluster of distal characteristics would suggest a watch strategy: There are storm clouds forming on the horizon, but one does not know if or when they will constellate into a fierce weather

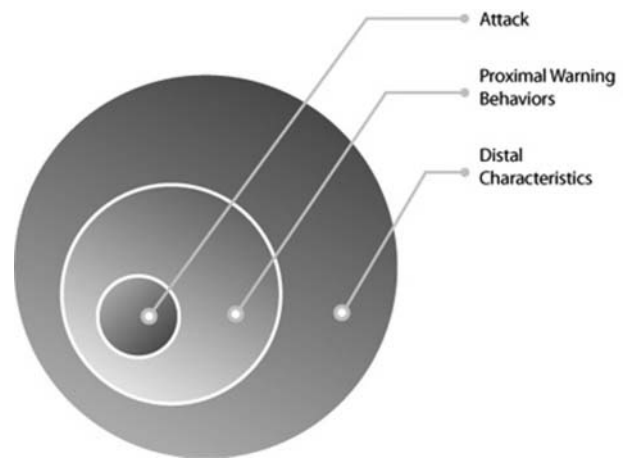


Figure 1. Theoretical relationship among distal characteristics, proximal warning behaviors, and terrorist attack.

event, or even a hurricane. The presence of one proximal warning behavior could suggest that the storm is in one’s backyard.<sup>5</sup> In other words, monitoring of a potential event—in this case mobilization for terrorist violence—shifts to active management of a more imminent event. This became the theoretical model for the relationship between the proximal warning behaviors and the distal characteristics, as illustrated in Figure 1, and the conceptual birth of the TRAP-18.

This model could serve another practical purpose: One of the major struggles among those tasked with counterterrorism is the amount of data to be evaluated, especially if one ponders the thousands of violent extremist platforms on the Internet that serve as both recruitment or networking vehicles and targeted violence skill development courses, and the dynamic nature of such platforms (Frampton, Fisher, & Prucha, 2017). Even if machine learning (Sanfilippo, McGrath, & Bell, 2014) is eventually able to manage such data and screen for risk in virtual reality, once a case is opened, what is its priority alongside other cases demanding terrestrial investigation? If the proximal warning behaviors actually indicated closer proximity to the terrorist act of violence, could their presence or absence be a metric for prioritizing a case?<sup>6</sup>

### Empirical validation of the TRAP-18

The first published study of the TRAP-18 coded a sample of 22 individuals who carried out acts of terrorism in Europe between 1980 and 2015 (Meloy, Roshdi, Glaz-Ocik, & Hoffmann, 2015). Fifteen subjects acted alone, and seven formed autonomous cells, which included the Charlie Hebdo attackers in Paris in January 2015. The mean interrater reliability (Cohen’s kappa) was 0.895 and ranged from 0.69 to 1.0 for the warning behaviors and 0.75 to 1.0 for the distal characteristics. Reliability was

<sup>4</sup>Although there are many academic, legal, and operational definitions, terrorism is herein generally defined as ideologically motivated violence against noncombatants.

<sup>5</sup>There are no empirically derived cutoffs for the TRAP-18 because it is an SPJ instrument and not a psychological test. Nevertheless, the model advances the hypothesis that one proximal warning behavior is necessary for active risk management, and data indicate that all targeted violence subjects to date have exhibited warning behaviors prior to their attacks.

<sup>6</sup>There is currently ongoing research by Gill (2016) to quantitatively sequence radicalization pathways using the TRAP-18 indicators. This methodology is visualizing such sequences by using state transition diagrams, the calculation of conditional probabilities, and tests for significance.

determined by Roshdi and Glaz-Ocik. The terrorists who acted alone and the autonomous cell members showed no significantly different frequencies across the eight warning behaviors, with a majority positive for 72% of the indicators. There were more differences when comparing the distal characteristics between the lone actors and the cell members, but both groups showed a frequency > 70% on personal grievance and moral outrage, framed by an ideology, thwarting of occupational goals, and changes in thinking and emotion. The only significant difference ( $p = .0048$ ,  $\phi = 0.70$ ) was a much greater frequency of criminal violence (100%) by history among the autonomous cell members than the lone actors.

There are some important takeaway points from this study. Gill, Horgan, Corner, and Silver (2016) noted the risk of a “time cohort effect” when a sample covered a lengthy time period, but in our study 64% of the cases occurred during the past decade, lowering the likelihood of such an effect. This study also provided some basic evidence of criterion validity for the TRAP-18 when applied to these small samples, and also the generalizability—the real world fit—of the instrument when applied to both lone actor and autonomous cell subjects. There was not, however, a comparison group of those of concern but without intent, as we had in the school shooting study (Meloy, Hoffmann, Roshdi & Guldemann, 2014) with just the warning behaviors; therefore, evidence for the TRAP-18’s discriminant validity was not demonstrated.

The second study (Meloy & Gill, 2016) used an open source sample of 111 lone actor terrorists from the United States and Europe as criteria to further validate the TRAP-18. Terrorism was defined as “the use or threat of action where the use or threat is designed to influence the government or to intimidate the public or a section of the public, and/or the use or threat is made for the purpose of advancing a political, religious, or ideological cause” (Gill et al., 2013, p. 2). The sample, however, included only those who planned and carried out an attack (in some cases thwarted) between 1990 and 2014. Seventy percent of the terrorists were positive for at least half or more of the indicators. Seventy-seven percent or more evidenced four proximal warning behaviors: pathway, fixation, identification, and leakage, consistent with other domains for targeted violence (Meloy, Hoffmann, Roshdi, & Guldemann, 2014). When the sample was divided into Islamic terrorists ( $n = 38$ ), extreme right-wing terrorists ( $n = 43$ ), and single-issue terrorists ( $n = 30$ ),<sup>7</sup> there were no significant differences across the 18 indicators except for four: personal grievance and moral outrage, dependence on the virtual community, thwarting of occupational goals, and fixation. Islamic extremist lone actors were significantly more likely to display dependence on the virtual community than the single-issue terrorists. Extreme right-wing lone actors were significantly less likely to display personal grievance and moral outrage, thwarting of occupational goals, and fixation warning behaviors than either the Islamic extremists or the single-issue terrorists. Single-issue lone actors were significantly less likely to display dependence on virtual communities than the Islamic extremists.

We then divided the sample according to successful ( $n = 67$ ) versus thwarted ( $n = 44$ ) attackers. The successful attackers actually carried out their violent act, whereas a thwarted attack covered plots that were developed by lone actor terrorists that were interrupted, uncovered, or stopped by some form of police, intelligence, or security organization and subsequently led to a conviction. Individuals caught up in FBI sting operations or “material support” cases<sup>8</sup> were not included. The successful attackers were significantly more fixated, creative, and innovative, and failed to have a sexually intimate pair bond. They were significantly less likely to have identifiable pathway warning behavior and be dependent on a virtual community of like-minded true believers. Effect sizes for these comparative differences were small to medium ( $\phi = 0.19$ – $0.32$ ).

These differences make operational sense. Less evidence of pathway behavior would suggest less observation by others, whether through luck or stealth. Fixation, the second warning behavior more frequent among the successful attackers, suggests an intensity of pursuit in a larger stalking context (Mullen et al., 2009). A history of failed sexual pair bonding lowers the risk of an intimate becoming familiar with one’s activities and disrupting the operation. Creativity and innovation, another distal characteristic more frequent among the successful attackers, helps outwit the counterterrorism investigator; and less dependence on the virtual community means a lessened chance of having one’s postings or social media communication picked up by a third party and communicated to authorities.

Meloy and Gill (2016) advanced the construct validation of the TRAP-18, with important within-group comparisons from an ideological and operational perspective. However, a comparison group of subjects of concern but without intent (false positives) was not available, and therefore discriminant validity was not demonstrated.

A North American study where we are correcting for this deficiency is in progress. Preliminary findings indicate that the proximal warning behaviors that differentiate the attackers from those of concern where there has been successful intervention and risk management, are pathway, identification, energy burst, last resort, and the absence of a directly communicated threat (Meloy et al., *in press*). What has emerged across all our targeted violence studies to date is the ubiquity of pathway, fixation, and identification; and within the lone actor terrorist domain, the evolution from fixation to identification—what one thinks about all the time, to what one becomes—might be a critical marker for imminency of risk.

The march of science is the interplay of nomothetic and idiographic research. Several studies have been published to advance a fuller understanding of the TRAP-18 in the context of the individual terrorist. Bockler, Hoffmann, and Zick (2015) wrote a detailed study of the Frankfurt Airport attacker utilizing the TRAP-18, and identified 15 out of 18 indicators. Meloy and Genzman (2016) studied the case of the Ft. Hood mass murderer with a particular focus on threat assessment using the TRAP-18 by mental health clinicians; he evidenced 13 out of 18 indicators. Bockler, Hoffmann, and Meloy (2017)

<sup>8</sup>These are cases in which a person knowingly and intentionally provides training, expert advice, service, or personnel for terrorist endeavors (18 US Code Section 2339A).

<sup>7</sup>Most of these single-issue terrorists were anti-abortionists.

scrutinized the Berlin Christmas market attacker's proximal warning behaviors, which included pathway, fixation, identification, leakage, and last resort. Other case studies are in progress. Case studies do not provide predictive data, but allow for a more nuanced and deeper study of each fact pattern and how it correlates with the TRAP-18 indicators.

Furthermore, all of these studies were retrospective in nature and involved relatively small sample sizes without comparison groups. Although these results provide support for the construct validity of the TRAP-18, no predictive inferences can be made. The absence of comparison groups—with the exception of the one study in progress—precludes any assertions about the differences between attackers and others of concern to national security investigators.

### Practical applications for mental health clinicians

The TRAP-18 is a structured, professional judgment instrument that is coded according to presence or absence of the particular indicator. It helps organize relevant data that have been shown to be empirically or clinically correlated with acts of individual terrorism. It is not an actuarial instrument, indicators are not counted but instead coded, and there is no cutoff score or norms for any SPJ instrument. It is the clinician's responsibility to weigh the importance of each indicator in a particular case; summarize the indicators into a meaningful narrative or understanding of the case; understand the limits of current research; render an opinion as to level of concern, risk, or priority; and formulate risk management strategies (Meloy & Hoffmann, 2014). SPJ instruments have been shown to have equivalent predictive value when compared to actuarial instruments for violence risk with low to moderate predictive power, and do best in identifying low-risk individuals with high levels of accuracy (Fazel, Singh, Doll, & Grann, 2012); although there are problems with the lack of standardization of predictive validity reporting (Singh, Desmarais, & Van Dorn, 2013). There is also a clear authorship bias when the developers do research with their own instrument (Singh, Grann, & Fazel, 2013), which I acknowledge herein as a conflict of interest in the research on the TRAP-18 that we have done.

SPJ instruments and actuarial risk assessment instruments fall into the two categories of discretionary and nondiscretionary approaches to violence risk assessment. The advantage of the discretionary SPJ approach is that, if done correctly, it provides an individualized formulation of the case, incorporating evidence-based research, best standards of practice, relevant legal and ethical parameters, and a way forward for risk management of a particular individual. It depends on the discretionary use of the professional's judgment in determining probable risk scenarios and how effectively they can be thwarted. Actuarial instruments—if used to only provide a cutting score to render a predictive opinion—do not allow for such discretion, do not offer risk management strategies, and are solely focused on the predictive accuracy of the instrument, typically expressed in probability estimates for violence of the particular group in which the individual resides. Contrasting perspectives on these approaches have been expressed and debated in the literature (Harris et al., 2015; Hart & Logan, 2011; Monahan, 2008).

What are the practical applications of these findings for a mental health clinician? First, it is imperative to note that the TRAP-18 will not predict who will or will not commit an act of terrorism. The base rate for such events is extremely low, particularly in the United States, and any attempt at prediction would likely result in a false positive finding and the potential for deprivation of liberties. The TRAP-18 as an SPJ instrument focuses on prevention rather than prediction. The most useful analogy is a medical one: A cardiologist cannot identify which of his or her patients will have a heart attack; however, the cardiologist does know risk factors for heart attacks and other cardiovascular events. Therefore, he or she manages these risk factors in the absence of specific predictive capabilities. If he or she does this well, the prevalence of heart attacks will decrease across his or her patient population. If asked, however, to identify which patients would have had a heart attack if he or she had not managed their risk factors, the cardiologist cannot answer. Prevention does not require prediction.

The TRAP-18 can help the clinician determine whether the patient should be monitored for further concerning behavior, or whether the patient should be actively risk managed to divert him or her from a plausible pathway toward ideologically motivated violence. The model suggests that the presence of one warning behavior means the clinical case needs active management (the warning); the presence of only a cluster of distal characteristics would suggest that the case needs active monitoring (the watch; Monahan & Steadman, 1996).

Active risk management could mandate the issuance of a Tarasoff warning, codified in various jurisdictions somewhat differently, but typically requiring the clinician to believe that the patient poses a substantial risk of violence toward an identifiable victim(s), and mandating the notification of the victim and law enforcement. Such decisions on the part of the clinician, however, should be made with the full awareness that federal agencies will be alerted when the term *terrorism* or *terrorist threat* is invoked, and further opportunities to clinically manage the case will probably dissolve. The seriousness of such an action, however, does not preclude its importance when a threat to national security is involved. There is another risk that cannot be overstated: The research on the TRAP-18 is currently limited by the lack of predictive validity studies, thus the filing of a Tarasoff warning, if based only on one proximal warning behavior, could be viewed as overstepping the reach of the instrument in its current state. Counterterrorism and other investigative agencies have addressed this problem by placing the risk of lone actor terrorism within the risk of general violence; they have paired the TRAP-18 with other instruments, such as the HCR-20 V3, which have substantial predictive validity (Douglas et al., 2013). In such a clinical context, the HCR-20 V3 would function as a “gateway” instrument to a more finely tuned and individualized assessment of the behaviors and motivations associated with lone actor terrorist violence using the TRAP-18.

Active monitoring, on the other hand, calls for a more nuanced approach to a clinical case, including the following:

1. Seek consultation with a mental health professional who is of the same racial, ethnic, or religious background as the patient so cultural behaviors will not be misinterpreted by the treating clinician (Meloy & Genzman, 2016).



2. Determine if there is a relationship between the patient's diagnosed mental disorder and his or her ideological framing, and if there are any incremental changes in thinking and emotion. This analysis should be conducted at the level of symptoms rather than diagnosis: Is the patient drifting toward a more fundamentalist belief system to modulate his or her anxiety concerning the worsening of his or her symptoms? Is there emerging an extreme, esoteric, if not bizarre, belief system that is helping him or her manage a decompensating mind? Is there a causal relationship between certain symptoms and the risk of violence that function as motivators, disinhibitors, or facilitators (Douglas, Guy, & Hart, 2009)?
3. Therapeutically manage the case with whatever mental health interventions are clinically indicated and feasible. These might include medication adjustments, psychotherapeutic frequency and duration changes, and voluntary or involuntary hospitalization.
4. Utilize collateral contacts with the patient's permission to gather behavioral information concerning the patient's activities when not in treatment, a critical component of a reliable and valid clinical threat assessment using the TRAP-18. Families and close friends might be quite hesitant to provide any information that suggests radicalization for fear of precipitous acts by law enforcement, and dependence on authority figures who have an ongoing relationship with the patient will likely be more informative. It is also imperative that the clinician be aware that family and kinship networks might be supporting the patient's radicalization (Gill, 2015).
5. Monitor the patient's online behavior, especially social media activity, by perusing his or her publicly accessible accounts with his or her permission. There is no reasonable expectation of privacy when one posts to Instagram, Facebook, Twitter, and so on, or any of the other myriad means of expressing oneself in virtual reality, but in a clinical context it is both ethically sound and professionally wise to fully inform the patient in advance of such investigative behavior. Clinical threat assessment recognizes that patients increasingly live in both terrestrial and virtual reality, and will often express their most intimate thoughts and feelings in the latter. Informing the patient of such active monitoring, however, might diminish use of social media; on the other hand, it could provide a consensual avenue for more open communication between the mental health professional and the patient.

### Further research implications

The research on the TRAP-18 is in its early stages. As data accumulate, however, and samples grow, it should become increasingly possible to identify distinct profiles of lone actor terrorists based on TRAP-18 variables using multivariate techniques, such as latent class analysis and cluster/component analytics. Further, methods such as multiple correspondence analysis might help to identify how individual or groupings of TRAP-18 variables could significantly correspond to various case outcomes (successful, thwarted, attempted but failed, etc.). Quantitative time sequencing analysis will also remain

important to determine when various distal and proximal indicators are expected to turn on and off in relationship to the violent outcome, and how threat management would change given these variations. Simple comparisons between those who have acted and those of concern but without intent will continue, with corresponding effect sizes, odds ratios, and confidence intervals if samples are sufficiently large. Determination as to the relative contribution of each indicator on the TRAP-18 to outcome will be useful to determine if any indicators should be dropped. Predictive validity studies are needed, although these are likely to be postdictive, known outcome designs (Monahan, 2012), and will only provide group data, and not individualized predictive risk estimates. Finally, does the TRAP-18 more effectively identify persons of concern and those who attack than other existing instruments for the assessment of violence risk? Ultimately, these statistical analyses and other research designs might support threat assessors in active case management by enabling those using the TRAP-18 to do so from an empirical, evidence-based perspective. Objective case management and investigative decisions compel the need for objective data, which in turn, influence policy, assignments, and budgetary efficiencies. Most important, and to eliminate authorship bias (Singh, Grann, & Fazel, 2013), other independent researchers will need to do studies on the TRAP-18.

### Conclusion

Empirically based threat assessment and management of individual terrorists is new, but terrorism is not. It is hoped that the TRAP-18, a rationally based and theoretically derived SPJ instrument, will contribute to this work. Targeted violence toward noncombatants for ideological reasons is a stain on the hope that civilized discourse can be the agent of social and psychological change. As Solzhenitsyn (1974) once wrote, however, "the line between good and evil cuts through the heart of every human being."

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