

DSM-5 Personality Disorder Terrorism Risk Assessment: A Four-Part Validation Study

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Abstract

Research into terrorism risk profiles has long been an integral part of the political science, psychology, and criminology fields. Before 9/11, debates on the importance of rational choice and/or personality were theoretical in nature. Al Qaeda's attacks moved this debate to the forefront of the domestic and international politics. An investigation into the September 11 attacks conducted by the United States (US) revealed that many of those involved in the attacks were considered foreign cell members operating in other liberal democracies (e.g., Germany), constituting a previously unknown threat profile (National Commission on Terrorist Attacks Upon the United States, 2004). As a result, the need to identify radicalized individuals became one of the priorities for liberal democratic governments. Although often successful at identifying radicalized individuals, national security agencies have struggled to determine who is at most risk of committing a terrorist attack. Unable to monitor every radicalized individual 24 hours a day, governments have placed trust into a variety of terrorism risk assessment instruments (TRAs). Most instruments currently in use focus heavily on the process of radicalization and extremist involvement while minimizing the importance of personality traits and disorders (Lloyd, 2019). As a result of a number of publicized false-negatives and the increased threat emerging from the lone actor spectrum, Corrado has developed a terrorism risk assessment instrument based on themes emerging from academic research, case studies, the Personality Disorder Inventory (PID) of the DSM-5, and the Comprehensive Assessment of Psychopathic Personality (CAPP) (Corrado et al., 2012). This dissertation assessed the strength of Corrado's TRA by conducting an exploratory four-part validation study. First, the study evaluated interrater reliability; second, the instrument's utility in predicting risk across ideologies was assessed; third the instrument was used to compare personality profiles of lone actor terrorists to group-based terrorists, and last, possible overlap in profiles of lone actor terrorists and mass shooters was examined. Findings suggest that there is no need for ideologically categorized terrorism risk assessment and that lone actors constitute a distinct terrorist typology.

Keywords: terrorism risk assessment; validation; interrater reliability; DSM-5 PID¹; personality trait perspective; ideology; lone actors; mass shooters

¹ Diagnostic and Statistical Manual of Mental Disorder Fifth Edition Personality Disorders Inventory (American Psychiatric Association, 2013)

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Chapter 1.

Introduction

The 9/11 attacks shifted the political and counterterrorism landscape. Al Qaeda had been considered a major player and threat to US interests abroad since at least 1998, when it attacked US embassies in East Africa; however, nobody expected an attack of such magnitude on American soil (Davis et al., 2010). National security efforts were quickly centralized, and identifying radicalized individuals became a top priority (Davis et al., 2010). Furthermore, professionals and researchers were encouraged to find ways to effectively determine the types of individuals who are most likely to join a terrorist organization or, while acting alone, engage in political violence (Corrado & Doering, 2021). Terrorism risk assessment instruments were created to meet a need of managing large populations of radicalized would-be perpetrators (Lloyd, 2019). While considerable attention was placed on terrorism recruitment and training, this approach has not led to establishing accurate profiles of individuals who transition from radicalization to acts of violence (Corrado & Doering, 2021). Identifying this transition has been especially difficult when attempting to profile lone actors ².

Corrado has asserted that the challenge of producing accurate psychological profiles of terrorists has resulted from the prioritization of socio-demographic and process-related indicators (Corrado & Doering, 2021). According to Corrado, the current minimization of the relevance of personality traits can be explained by the predominant theoretical view that there are too few differences in individual profiles of lone actors and other violent offenders (Corrado & Doering, 2021). Furthermore, much of the traditional research has focused on terrorism as a political phenomenon involving rational choice-based actors (Caplan, 2006; Ganor, 2005; Schneider et al., 2014). Research into terrorism risk assessment at the individual level has therefore focused more on demographic, socio-economic and ideological factors, and less on personality traits and disorders (Corrado & Doering, 2021). Although the predominant theoretical view has built the basis for terrorism risk assessment instruments currently in use, some have

² Radicalized individuals acting independent of a terrorist organization (more in-depth definition provided in chapter 5 of the dissertation) (Spaaij, 2010).

questioned this perspective. For instance, Monahan (2012) was one of the first to conduct a review of all studies on terrorist motivations. He found that much of the research on terrorist motivations had significant validity concerns. Considering the comprehensive nature of the review, these findings may suggest that the predominant theoretical view lacks enough empirical support and that personality-trait based risk assessment should not be disregarded.

Current TRAs mostly focus on the radicalization and recruitment process, placing an emphasis on indicators such as social media, changes in the relationship with family and peers, travel plans, criminal involvement, and changes in socialization patterns. Although these indicators may succeed at identifying radicalized individuals, they do not necessarily aid in assessing who, amongst many, is likely to commit a violent attack (Corrado & Doering, 2021; Lloyd, 2019). While current instruments such as the Violent Extremist Risk Assessment Revised (VERA-2R) and RADAR-iTE 2.0 (Rule-based analysis of potentially destructive perpetrators to assess acute risk – Islamist terrorism) seemingly succeed at identifying behaviors associated with an increased risk of engagement in political violence, they have failed to recognize the most at-risk individuals on numerous occasions (Lloyd, 2019; Fernandez & de Lasala, 2021; Pressman et al., 2017; Sadowski et al., 2021). As a result, the broader public often is critical of law enforcement and political decision-making when post-attack analyses reveal that the perpetrator had been known to the authorities but did not meet the risk threshold to justify close monitoring or other interventional measures (Corrado & Doering, 2021). Additional reasons for a lack of consistent monitoring have included the inability to provide personnel resources to monitor thousands of individuals, as well as the potential privacy concerns in relation to monitoring (Corrado & Cohen, 2017; Corrado & Doering, 2021).

As a response to the prior disregard for personality disorders and related traits in terrorism risk assessment, Corrado and his team have developed a Personality Inventory (PID) for DSM-5-based terrorism risk assessment instrument (Corrado & Doering, 2021; Knoechelmann et al, 2021). This novel TRA adds to the existing field by including four new domains: “Cognition”, “Identity”, “Ideology”, and “Criminality” (Corrado & Doering, 2021; Knoechelmann et al, 2021). An initial exploratory assessment study conducted in 2021 revealed that Corrado’s TRA displayed moderate reliability across six

of nine domains on an open-source sample (Knoechelmann et al., 2021). Information was collected by looking at online news reports to assess individuals who had engaged in terrorism. The remaining domains displayed poor reliability. Building on the initial assessment attempt, this dissertation further examined the strength of Corrado's instrument by conducting an exploratory four-part validation study. The first step assessed the reliability of the instrument by measuring the interrater reliability when scoring case files of known terrorists. Testing interrater reliability of the instrument is crucial. Given that Corrado's TRA instrument was developed to be utilized at the national security level, relative consistency in scores amongst raters speaks directly to the instrument's usefulness in the law enforcement field.

The second part of the validation process is related to Corrado's assertion that terrorism risk factors do not significantly differ across ideologies and that the instrument would be successful at identifying risk across all terrorist ideologies (Corrado & Doering, 2021). Hence, according to Corrado, there is no need for ideologically categorized assessment instruments (Corrado & Doering, 2021). This idea stands in stark contrast to routes taken by countries such as Germany, which currently is in the process of developing a terrorism risk assessment instrument specifically designed to address the risk emerging from right-wing extremists. Germany's new instrument is based on their in-house risk assessment instrument RADAR-iTE 2.0 (Bundeskriminalamt, n.d.; Sadowski et al., 2021). Whereas RADAR-iTE 2.0 focuses on risk factors exclusive to Jihadist motivated political violence, RADAR-rechts will include risk indicators specific to right-wing extremism such as propensity for violence and right-wing ideology (Bundeskriminalamt, n.d.; Sadowski et al., 2021). Considering the policy approaches some countries are taking, it was important to investigate Corrado's argument for a unitary instrument further. Therefore, the second part of the study assessed the validity of Corrado's instrument by creating datasets based on ideology.

Third, this dissertation examined the personality differences between lone actors and group-based terrorists. Much research comparing mass shooters and terrorist profiles has focused on different terrorist typologies (e.g., Capellan, 2015; Horgan et al., 2016; Lankford, 2012; Liem et al., 2018). Furthermore, law enforcement seems to have the most difficulty assessing risk in lone actors (Corrado & Doering, 2021). Therefore, it was important to explore whether group-based and lone actor terrorists differed

significantly in their personality profiles. Building on the findings of the previous process stage, the validation study concluded by exploring the relevance of Corrado's instrument to profiles of mass shooters. Traditionally, research and law enforcement have treated mass shooters and lone actor terrorists as two distinct offender groups, and Corrado has argued that lone actor terrorists display distinct personality profiles (Corrado & Doering, 2021). More recent research, however, has suggested that risk profiles of lone actor terrorists and mass shooters, although varying to some degree, are overwhelmingly similar (Capellan, 2015; Horgan et al., 2016; Lankford, 2012; Liem et al., 2018). Based on the findings, researchers such as Capellan (2015), Horgan et al. (2016), Lankford (2012) and Liem et al. (2018), have suggested that risk assessment, for both offender groups, should consider similar socio-economic and process-related factors. Considering this emerging trend of grouping both offender types together, it was important to assess Corrado's instrument validity for both lone actor terrorists and mass shooters. Since mass shootings are an overwhelmingly American phenomenon, this part of the study based itself only on case files of lone actor terrorists and mass shooters having committed their crimes in the US context.

The concluding step of this dissertation examines the theoretical and statistical strength of Corrado's proposed instrument. Analyses revealed that not all indicators grouped in domains were statistically correlated. Based on this finding, it was decided to utilize a factor analysis to create new groupings (domains) that were both statistically and theoretically sound. Fourteen new domains were created for Corrado's proposed terrorism risk assessment instrument.

Chapter 2.

Literature Review

When assessing the validity of a DSM-5 PID-based terrorism risk assessment instrument, a multitude of areas in academic research, as well as major debates, must be considered. First, it is necessary to examine the development of academic attitudes towards terrorism motivations over time. For instance, historical political changes such as the end of the Cold War or the 9/11 attacks have largely contributed to research and theory-building around terrorist motivation. As such, this review of academic literature commences by examining the debate between theorists and researchers on the importance of personality in terrorist motivation. Although, as previously discussed, personality was subject to debate in the earlier decades of research, terrorism risk assessment research became much more prevalent during the War on Terror. Being somewhat blindsided by Al Qaeda's actions, the US, and other Western liberal democracies³ demanded more accurate terrorism risk assessment. This led to an increase in research on terrorism risk factors in general, and on the importance of personality trait and disorder risk factors specifically. Therefore, the second section of this review examines prominent research studies conducted in this area.

The final section of this literature review explores research related to personality profiles of mass shooters and terrorists. As discussed in the introductory chapter of this dissertation, several recent studies have explored the similarities and differences in profiles of these two offender groups. A number of these studies suggest overwhelming overlap between mass shooters and different terrorist typologies (e.g., suicide terrorists, lone actors). In contrast, Corrado has argued that lone actors possess distinct personality traits unlike other offender groups (Corrado & Doering, 2021). To assess Corrado's claims, associated research needs to be examined. After providing an in-depth review of relevant literature and research, chapter three of this dissertation discusses key concepts that build the basis for terrorism risk assessment. Constructs that are outlined relate to defining terrorism, the difference between threat and risk

³ Definition has changed throughout history depending on the political context. Here referring to member states of NATO in the post-Cold War context.

assessment, exploring different risk assessment approaches, and examining terrorism risk assessment instruments currently in use. The key constructs section will lead into a comprehensive description of Corrado's proposed DSM-5 PID-based terrorism risk assessment instrument.

2.1 The Role of Personality in Terrorist Motivation

Given the importance of balancing individual freedoms and rights with collective security, it is not surprising that there has been a debate regarding how governments have responded to terrorism trends since the 1960s. A common approach among terrorism theorists is to focus on a shift in terrorism during the mid-1990s up to the World Trade Centre attacks, which centres on the movement from a Cold War to a Post-Cold War context (Brown, 1993; Corrado & Evans, 1988). During the Cold War period, many of the larger and sustained terrorist organizations were linked either to the former Soviet Union or to the US and they either could be located along a left to right political spectrum, ethnic nationalists, or a combination of them. Arguably, most guerilla and/or terrorist organizations were in contact with either the Soviet Komitet Gosudarstvennoy Bezopasnosti (KGB) and affiliated nations' security services, or the US Central Intelligence Agency (CIA) and its' allies regarding strategy, funding, intelligence, and training (Brown, 1993; Corrado & Evans, 1988). This Cold War structural context was embodied in the often unexpected coalitions between guerilla and/or terrorist groups and countries following the Soviet Union's invasion of Afghanistan in 1979 and its withdrawal in 1989 (Corrado & Evans, 1988).

Most theorists predicted the demise of traditional ideological and nationalist terrorist organizations in advanced industrial nations, and the resultant rise of issue-based organizations focused on animal rights, environmental rights, and anti-abortion (Corrado & Evans, 1988). More generally from a global structural perspective, political scientist Francis Fukuyama (2002), and internationalist/economic researcher Daniel Yergin (Yergin & Stanislaw, 2002) asserted the parallel themes of the "end of (secular) ideology" in international politics and the global economy primarily because liberal democracies and the global capitalism had replaced the Cold War and Colonial contexts of the 20th century. Beginning in the 1970s, the debate over individual motivations to

engage in terrorism focused on the psychopathy, rational choice, or misplaced idealism perspectives.

2.1.1 The Individual Motivation Debate: Psychopathy, Rational Choice, and Misplaced Idealism

The psychopathy perspective emphasized the cruelty of terrorism, especially the discriminant killing of “innocent” persons. In effect, emotional callousness and grandiosity, key facets of psychopathy, best explained why certain individuals appeared euphoric in committing violence to terrorize populations (Borum, 2004; Corrado, 1981). There was little doubt among historians, biographers, and psychiatrists that state terrorist leaders that initiated and carried out mass killings and genocide were associated with totalitarian regimes (Corrado, 1981). Totalitarian leaders such as Stalin, Hitler, and Mao Tse Tung were high functioning (politically and organizationally astute as well as emotionally, relatively disciplined), megalomaniacal (grand scale politically focused psychopaths) leaders (Corrado, 1981; Rappa, 2011). The psychopathy attributed to state terrorist leaders was also asserted as relevant in explaining individual motivations in engaging in anti-state indiscriminate terrorism (e.g., Carlos the Jackal affiliated with several pro-Palestine liberation organizations who undertook bombings in public locations) (Hänni, 2020). This perspective focused on narcissistic and overlapping psychopathic traits of terrorists. Freudian and related psychoanalytic theoretical perspectives often were employed to explain this violent neurosis hypothesis (Borum, 2004).

The rational choice explanation instead focused on the historical grievances and the inability of ruling elites/governments in rectifying them (e.g., slavery, genocide, apartheid) (Borum, 2004; Crenshaw, 1981; Corrado, 2021; Gurr, 1970). In effect, terrorism was a potentially effective tactic for individuals from victimized groups to confront powerful national state institutions especially police and armed forces (Borum, 2004; Corrado, 2021). The liberation of colonies from the post-WWI and WWII periods provided evidence that the enormous sacrifices and costs of guerilla and/or terrorist movements could be exceeded by the ultimate benefits of the eventual end of traditionally oppressive national regimes and political systems (Borum, 2004; Corrado,

2021). Corrado argued that the rational choice perspective did not apply as well in liberal democracies and advanced industrial economic based countries for several reasons. Most importantly, there were more effective political alternatives available, and succeeding in obtaining radical ideological objectives through terrorism was nearly impossible (Corrado, 1981). One such example, is the eventual demise of the Red Army Faction (RAF) in West Germany (Moghadam, 2012).

Historical grievances existed in many liberal democracies, but it was “misplaced idealism” that motivated typically younger adults into believing terrorism could be an effective political tactic (Corrado, 1981). This construct excluded the traditional personality disorder categories stipulated by the DSM-III (1980), given that no research at that point supported this explanation (American Psychiatric Association, 1980; Rasch, 1981; Crenshaw, 1981). Instead, misplaced idealism acknowledged the long history (since the early 19th century) of idealistic personality-based motivations especially among youth and young adults concerning the use of violence to seek essentially utopian versions of the then emerging and largely secular ideologies and nationalism (Corrado, 1981).

The second key component of this construct-based perspective was that most of the anti-state terrorist organizations during this period involved complex coordinated hierarchical or cell structures and stringent recruitment criteria. As discussed above, by the second half of the 20th century, many anti-state terrorist organizations appeared to be connected to either the Soviet or US intelligence organizations in some capacity (e.g., intelligence, financing, refuge) (Corrado, 2021). In effect, individuals theoretically who could have been characterized according to DSM-III & IV personality disordered categories⁴ were hypothesized as incompatible (i.e., undependable, and potential security risks) with the operational needs of most sustained anti-state terrorist organizations whether ideological or nationalist based. However, there was little

⁴ Personality disorder: “*Enduring pattern of inner experience and behavior that deviates markedly from the expectations of the individual's culture, is pervasive and inflexible, has an onset in adolescence or early adulthood, is stable over time, and leads to distress or impairment* (American Psychiatric Association, 1994, p. 629).”

research available to assess the validity of the above theoretical perspectives (Borum, 2004; Corrado, 2021).

In the mid 1990s, the DSM-IV changed the Axis II⁵ personality disorder (PD) symptom profiles. This change was based on additional clinical research ((American Psychiatric Association, 1994; Corrado & Doering, 2021). Although psychopathy was not included in the DSM-IV, it became a more important personality construct in understanding serious violent offending. This trend was led, in part, by multiple studies using the Psychopathy Check List (PCL) developed by Hare (Storey et al., 2016). This by extension, arguably, included terrorism. The original psychopathy research and recent academic work has contributed to the current ongoing debate discussing the importance of psychopathy in the criminological theorizing of serious violence (Vaughn et al., 2008). Despite moving psychopathy to the forefront of the academic debate on serious violent offending, the commonly held belief that low likelihood of psychopathy (or any of the Axis II explicit personality types) is an important predictor for terrorism persisted, possibly in part due to structural shifts in the nature of terrorism post 9/11 (Borum, 2004; Corrado & Doering, 2021).

2.1.2 The Emergence of Religious Extremism-Based Terrorism

Jihadism as a religious extremist political ideology emerged gradually and more systematically first in Egypt and Saudi Arabia throughout the mid of the 20th century (Corrado, 2021; Rosefsky-Wickham, 2002). Arguably, the momentum for organizations based on this ideology involved countering the repressive and violent policies of primarily secular ideologically based regimes (e.g., Nasser regime in Egypt) (Rosefsky-Wickham, 2002). State terrorist tactics such as arbitrary arrests and the use of systematic torture were employed both to obtain information and to frighten regime opposition in countries such as Algeria, Egypt, Iraq, and Syria (Corrado, 2021; Rosefsky-Wickham, 2002). As well, failed economic policies often related to widespread structural graft/corruption and

⁵ DSM-IV Axis II: "*Paranoid personality disorder; schizoid personality disorder; schizotypal personality disorder; antisocial personality disorder; borderline personality disorder; histrionic personality disorder; narcissistic personality disorder; avoidant personality disorder; dependent personality disorder; obsessive-compulsive personality disorder; personality disorder not otherwise specified; and mental retardation* (American Psychiatric Association, 1994, p. 27)."

the vastly unequal distribution of employment and material benefits alienated substantial segments of the population (Rosefsky-Wickham, 2002). Rural poverty and internal migration to major metropolitan centres too concentrated disaffected subgroups (Rosefsky-Wickham, 2002). This led to disenfranchised youth across countries in the Middle East, a perfect breeding ground for political radicalization (Corrado, 2021; Rosefsky-Wickham, 2022).

As mentioned above, international catalysts for Jihadism emerged, most critically during and immediately after the Soviet invasion of Afghanistan. The Soviet invasion in Afghanistan has been historically associated with the emergence of Jihadi organizations that became involved in the mujahideen guerillas which engaged the Soviet military, and its Afghani government allies between 1979-89 (Boon et al., 2011). The success of the Jihadi Taliban guerilla movement in creating an Islamic Republic based on a radical Salafist ideology, too, became symbolically critical as an example of the ability of mujahideen guerilla/terrorist tactics defeating an overwhelmingly more powerful Western, secular, political, and industrial-based military (Boon et al., 2011). This Islamic republic provided the still evolving Al Qaeda (AQ) with a geographic sanctuary necessary to set up a highly sophisticated organizational structure tactically necessary to promulgating this religious ideology and affiliated terrorist movements throughout the globe (Boon et al., 2011; Roy 2017a). This initial international structural change (i.e., transnational anti-state terrorist organizations) culminated in the 9/11 attacks. Another catalyst for Jihadist ideology was the nearly-century old Muslim anger directed toward the creation of Israel and its territorial expansion through wars after its founding in 1947 (Cleveland & Bunton, 2016). The perceived humiliation extended beyond the Palestinians to surrounding Arab neighbors and led to mass radicalization (Cleveland & Bunton, 2016). Similarly, more recent structural changes occurred with the creation of the ISIS (Islamic State in Iraq and Syria) in sections of Syria and Iraq (Roy, 2017a; Wasserstein, 2017). The declaration of the Caliphate associated with this ISIS geographic entity marked a key historical turning point partly because individuals drawn to the Jihadist ideology now had another option to Al Qaeda, which was distinguished by the former's ability to attract individuals to an extant "Caliphate" rather than a distant and purely hypothetical Al Qaeda Caliphate (Roy, 2017a; Wasserstein, 2017).

The ideological appeal of ISIS involves an actual radical Salafist lifestyle and immediate opportunity for martyrdom in the fight to maintain, expand, and defend the Caliphate (Roy, 2017a; Wasserstein, 2017). The apocalyptic element of this ideology is embedded in the historical sites such as Aqib within the Caliphate, the perpetual war with “heretical” Muslim sects, especially Shias, and the Jihad against crusader powers of Europe and other regions (Roy, 2017a; Wasserstein, 2017). The political chaos of the Arab Spring uprisings, the related disintegration of once authoritarian imposed stability in Tunisia, Libya, and Syria, and the defeat of the popularly elected Muslim Brotherhood regime in Egypt all contributed to the appeal of Jihadi ideology, particularly among younger and idealistic individuals (Magen, 2012; Roselfsky-Wickham, 2002). The geographic proximity to Middle Eastern, North African European countries and the Muslim Caucasus region has made it feasible to travel relatively easily to the Caliphate. Finally, ISIS utilized internet technology to an unprecedented degree for financing, recruitment, and the training, planning and execution of military and terrorist operations (Roy, 2017a; Wasserstein, 2017).

Fundamental structural changes have occurred since the 1990s that facilitated the sustaining of the radical Jihadi ideological appeal to individuals to engage in terrorism. What remains unclear is whether Jihadi organizations attract individuals who have different personality trait profiles than those who were attracted to the secular ideologies and ethnic nationalism of the last century, or individuals who still are motivated by single issues or the primarily resurgent fascist ideologies. The competing theoretical perspectives of the last half of the 20th century remain dominant; on the one hand, there is the assertion that personality disordered individuals are not selected by organized, sustained Jihadi terrorist organizations such as Al Qaeda and ISIS (Borum, 2004; Hoffman, 1999), while on the other hand, the prevalence of martyrdom involved suicide attacks raises the hypothesis that such organizations possibly select depressive or grandiose individuals for these self-destructive acts (Borum, 2004; Merari, Diamant et al. , 2009; Merari, Fighel et al., 2009).

Further, Jihadi terrorist/guerilla/military institutions such as the Taliban in Afghanistan and Pakistan, Al Shahab in Eastern Africa, Boko Haram in the sub-Sahara region, Al Qaeda affiliates in the Arab Peninsula, the Saleel in the vast Sahara region, Abu Sharif in the Philippines, and the IS in Libya have engaged in mass horrific acts

violence such as beheadings, burnings, mutilations, kidnappings, and rape against non-combatants (Corrado, 2021; Roy, 2017a; Wasserstein, 2017). The viciousness and scale of these violent incidents arguably suggest the possible relevance of personality constructs, traits and, disorders, especially psychopathy. In effect, potentially psychopathic individuals are operationally and organizationally functional in weak state and “failed state” contexts (Corrado, 1981; Corrado, 2021). The counter hypothesis has been that personality disordered individuals are too emotionally unstable (e.g., either too impulsive, disorganized, angry, self centered, untrustworthy, disrespectful of command hierarchy, or combinations of these personality traits) to participate in sustained and organized planning and operations essential to organizations such as the Taliban, Al Qaeda and ISIS (Borum, 2004; Corrado & Doering, 2021; Hoffman, 1999).

2.1.3 Concluding Thoughts

Beyond this theoretical debate, there has been little research that allows for a systematic assessment of the related hypothesis from these two perspectives. Instead, the discussion often has involved case studies (Borum, 2004). While illuminating, this research source obviously has limitations for theory building, instrument profile/assessment construction, and policy purposes, especially intelligence and policing. In contrast, large incident-based studies have detailed the sequence or stages most Jihadi or radicalized individuals undergo some culminating in a violent terrorist act (e.g., Moskalenko & McCauley, 2011). A key challenge for intelligence and policing agencies is that not all individuals who enter the initial stages, typically learning about an ideology and contacting potential recruiters, move through to the final stage, the terrorist act. Potentially, thousands of individuals access Jihadi internet sites but proceed no further (Corrado & Cohen, 2017). Even individuals who proceeded to changing friends, adopting strict Sharia principles (dress, facial appearances, prayer, withdraw from non-conforming family members), and voicing opposition to anti-Jihadi political policies do not necessarily proceed to the final radicalization stage (Corrado & Cohen, 2017). For instance, in the U.K., it has been estimated that there are 20,000 individuals identified by British intelligence and police counter terrorist agencies within the initial stages, 5,000 in subsequent middle stages, and 500 who require monitoring because of intelligence concerns regarding involvement in actual planning stages (Corrado & Cohen, 2017). Recent research suggests that there are multiple radicalization pathways often

depending on the region and country, most obviously, in failed states versus wealthy liberal democratic societies (Rogers et al., 2007). As well, in certain European countries such as Belgium and France, criminal histories, especially prison sentences, are a major part of the pathway to full radicalization (Hamm, 2013).

The current debate about the relevance of mental illness and personality traits in explaining pathways to all expressions of terrorism have been most informed by two major studies (Hoffman, 1999; Merari, Diamant, et al., 2009). Merari, Diamant, et al. (2009) are among the few having been able to conduct research on imprisoned terrorists. Other researchers (e.g., Gill et al., 2021; Lankford, 2012) have instead used open-source information to assess profiles of terrorists. Researchers such as Lankford (2012) and Gill et al. (2021) have also been at the forefront of the debate on differences in profiles of terrorists and mass shooters, an area of research discussed in later sections of this review of academic literature.

2.2 The Importance of Personality Profiles in Terrorism Risk Assessment

2.2.1 The Socio-Psychological Perspective

As mentioned in the previous section, Hoffman (1999) conducted one of the studies that has informed the debate on personality profile relevance to risk assessment. Hoffman (1999) reported no differences between the personality profiles of terrorist and non-terrorists. Furthermore, the study concluded that there was no evidence of personality disorders distinguishing the two groups. Instead, the study highlighted ideologic and operational imperatives. Building on Hoffman's findings, other researchers have provided similar conclusions even when examining suicide bombers (Hassan, 2010; Post et al., 2009). Hoffman's (1999) study is often seen as a benchmark by those who reject the importance of personality traits/disorders in terrorism risk assessment.

Those who agree with Hoffman believe that the decision to engage in terrorism is mainly influenced by socio-psychological factors such as sense of group belonging, group safety, and desires for approval by peers and authority figures (Horgan, 2005;

Silke, 2003; Silke, 2008). The core of the socio-psychological perspective suggests that otherwise “normal” non-violent individuals only engage in terrorism due to the group influence (Silke, 2008). Most TRAs currently in use are centered around this perspective. Furthermore, some “in-house” instruments such as the NYPD radicalization model is based on stages (Smith, 2018) that indicate the depth of involvement in the group and the associated risk. The key thought of these stage models is that the deeper an individual is embedded in an organization, the more likely they are willing to commit to violence (Smith, 2018). Several terrorism risk assessment instruments that were created in the US, the United Kingdom, and Canada, and which will be discussed in greater detail below, emphasize stages of involvement reflecting Jihadi ideological beliefs, social psychological dynamics, and associated violent behaviors.

2.2.2 The Personality Trait Perspective

Whereas Hoffman (1999) provided a key study to those who minimize the relevance of personality in terrorism risk assessment, Merari, Diamant, et al. (2009) conducted a study often regarded as the basis for the personality-based risk assessment argument. Merari, Diamant, et al.'s (2009) research involved the use of standard (i.e., validated) psychometric measures/instruments (e.g., SCID: Personality) and clinical (psychologists and psychiatrists) interviews with a sample of 15 individuals who were held or incarcerated in the Israeli prison system for attempted suicide attacks. As a control component the study included a sample of imprisoned non-suicide terrorists. The main finding of the study was that several personality traits were predominantly present in the suicide terrorist sample but were not at all or only partially found in the terrorist control group. Traits identified in the suicide terrorist sample included suicidality, depressivity and, dependent-avoidant style (Merari, Diamant, et al., 2009). Although this study is often regarded as the “gold standard” for those who support personality-based risk assessment, a main limitation is noteworthy: specifically, the study lacked a non-terrorist control sample. Another study examining profile differences in suicide terrorists was conducted by Lankford (2012). Utilizing open-source data, Lankford (2012) compared suicide terrorists with workplace, rampage, school shooters. Lankford (2012) found that suicide terrorist displayed personality traits such as trauma, depression, and suicidality. However, it is important to mention, that Lankford's (2012) study also suffered

from some validity limitations, specifically the use of open-source data. Nevertheless, Hoffman (1999), Merari et al. (2009) and, Lankford's (2012) studies build the basis of debate and are crucial in answering the question whether personality-based terrorism risk assessment should be pursued.

2.2.3 Monahan's (2012) Review of Terrorism Risk Assessment Research

After having discussed the importance that has been placed on Hoffman (1999) and Merari, Diamant, et al.'s (2009) studies, it seems necessary to address one of the major reviews conducted on studies of terrorist motivation. Monahan's (2012) review of research on terrorist motivations is considered a staple in the area of terrorism risk assessment. Monahan's (2012) study examined all research published on terrorism risk assessment up to the first decade of the 21st century. The study concluded that there were several fundamental validity challenges in developing terrorism risk assessment instruments. After reviewing all research conducted on terrorism risk assessment and risk assessment, in general, Monahan (2012) concluded that there was "*little evidence that one validated instrument predicts violence significantly better than another*" (p. 174). One of the main concerns expressed by Monahan (2012) was that the reviewed instruments frequently relied on mentally disordered populations and/or violent correctional inmates when assessing validity. Monahan (2012) primarily argued that to assess risk of engagement in terrorism, instruments needed to identify individual risk factors.

Monahan (2012) reviewed the following risk factors: age, gender, marital status, social class, major mental illness for group-based terrorism, prior crime, suicidality, personality disorder, and personality. When discussing shared personality traits among terrorists, Monahan (2012) expressed caution, referring to Merari (2010) when concluding that there was a lack of evidence-based research suggesting an exclusion of personality traits. Monahan (2012) also referred to Kroner et al.'s (2005) study in saying that "*none of the four overlapping dimensions of the risk for common violence identified by Kroner et al. (2005)—criminal history, an irresponsible life style, psychopathy and criminal lifestyle, and substance abuse—characterized those who commit violent terrorism*" (Monahan, 2012, p. 179). Monahan's (2012) review further concluded that there may be a need for categorized instruments based on the type of terrorism (e.g.

lone actor, suicide, homegrown/domestic). Lastly, Monahan (2012) suggested that there were only two types of instruments likely successful at assessing risk for terrorism: modified clinical risk-based instruments and structured professional judgement-based instruments (Monahan, 2012). Monahan (2012) mentioned the VERA instrument as an example of a structured professional judgement instrument in clinical use. The VERA was developed in Canada by academic experts in cooperation with the Royal Canadian Mounted Police (RCMP) (Lloyd, 2019; Pressman, 2009; Pressman et al., 2017). More detailed information about the instrument is found in the key constructs chapter of this dissertation.

As discussed above, one of the main conclusions Monahan (2012) mentioned was that terrorism risk assessment theorists needed to identify new risk factors for individual risk assessment. Potential variables Monahan (2012) identified included: dissatisfaction with current political activities, can achieve more in politically driven death than in life, identification with police/military victims, emotional vulnerability, belief that violence against state is not inherently immoral, and kinship/social connections to other proponents of political goals(s) (Monahan, 2012, p. 185). Based on Monahan's (2012) findings, McCauley and Moskaleiko (2011) introduced further concepts such as: "personal grievance" against violence perpetrators (p. 13); "group grievance" against violence perpetrators (p. 21); "slippery slope dynamic of movement to greater radicalization (p.35); "love" for another radicalized person (p.49); "risk and status" among peers (p. 58) ; and, "unfreezing," resulting from reaction to loss of social connection by joining new ideas and identity (p. 79). Saucier et al. (2009) also added to these concepts by suggesting the relevance of grievance, cathartic, self- aggrandizing, enemy neutralizing, and ideologically based themes. Monahan (2012) also emphasized the need for individual-based risk assessment to distinguish those who simply sympathize with Jihadist political ideology and those who are willing to engage in violence. Recognizing this willingness to commit an attack would likely be relevant to all ideologies (Monahan, 2012).

2.2.4 Borum's Research on Individual-Based Risk Factors

Another study with undeniable impact on the field of terrorism assessment was conducted by Borum in 2014. Borum's (2014) study advocated for the inclusion of individual-based risk factors. Among other individual-based risk factors, Borum (2014) specified those based on DSM-5 themes:

Although a traditional medical model of mental illness and disorder often assumes a categorical distinction between what is normal and what is disordered, current research on psychopathology seems to be converging around the idea that adaptive and maladaptive processes exist along a continuum. The pathways of normal and abnormal psychological development are related. Sometimes the pathways diverge toward the adaptive or maladaptive (Borum, 2014, p. 286).

Borum (2014) primarily focused on the importance of what he called a broader organizing "mindset" (p. 287) construct to provide the basis for a more narrowly defined personality construct. Sire (2004) asserted this construct included the related "world view" concept (p. 141): every individual makes sense of their experiences of world events and social interactions based on fundamental assumptions and presuppositions typically involving such prescriptive themes of good and evil, justice, political order, and personal philosophy. Worldview became especially relevant in the post WWII period when psychologists attempted explain why supposedly "normal" individuals utilized extreme ideologies such as national socialism (fascism) to justify genocide committed against non-combatants based on race, mental illness, physical disabilities, religion, and ideology (Corrado, 2021). Again, not all fascists supported extreme violent acts and only a small proportion of fascists directly participated in implementing politically directed violence such as mass murder, torture, and medical experiments (Corrado, 2021).

Borum (2014) traced the emergence of a specific personality type to Adorno et al. (1950), who engaged in a series of studies of those who did participate in violence focused organizations (e.g., those who joined the Schutzstaffel (SS) in Germany and in other European countries). The authoritarian personality type emerged from this research which included nine traits such as rigid thinking, submission to authority,

displaced anger, inability to trust most others, need for powerful leaders, simplistic cognitive processes, fear of “dangerous” ideas, belief in their purity and goodness and evilness of individuals of “outside” groups, and ethnocentrism. Borum (2014) noted other indicators on a cognitive styles/domain including rigidity, dualism, and intolerance of ambiguity. Regarding the ideological domain, Borum (2014) cited the classic xenophobic/anti-liberal democratic indicator profile including ethnocentrism, anti-immigrant, and nationalism. Borum (2014) identified several other authoritarianism related constructs whose indicators could constitute a clinical construct that could be embedded in a terrorism risk assessment instrument including psychoanalytic related clinical apocalyptic complex. This construct focused on depression related expressions of externalizing causes to outgroups or paranoid psychosis associated with schizophrenia and mania relief through politically directed violence (Borum, 2014).

Furthermore, Borum (2014) discussed the relationship between traditional “psychological vulnerabilities” (p. 291) for terrorism mentioned above, including the need for meaning, need for belonging, and perceptions of injustice/humiliation. In connection with these traditional vulnerabilities, Borum (2014) also contended that five motivational clusters had been identified in the research: status related (group based enhanced self-esteem) (p. 294); identity-related (ideological based identity as a proxy for personal identity) (p.294); thrill-related (p. 294); revenge-related (p. 294); and, material-related (e.g., financial, family assistance, employment, housing) (p. 295). Borum (2014) also examined attributional propensities (i.e. individual explanations for personal negative and positive experiences) for terrorism, externalizing bias (avoiding personal responsibility for negative experiences) (p. 295); personalizing bias (blaming specific persons for negative events and intolerance for explanatory ambiguity) (p. 296); hostile attribution (ascribing of hostile intent to others words and actions when it does not exist) (p. 296); confirmation bias (use only of information that confirms existing beliefs) (p. 296); and, the related “jumping to conclusion” bias (quick discarding of counter hypotheses) (p. 296).

Borum (2014), however, cautioned that “*Attributional bias, including paranoia and sub-clinical or clinical delusions, can be an antecedent or a consequence of terrorism involvement* (p. 297).” According to Borum (2014), to some extent, the determination of this causal direction required that both volitional and affective propensities needed to be

considered, as well (i.e., ability to control or regulate the full range of emotions, thoughts and behaviours required to achieve pro-social or adaptive goals). Volitional propensities center around the self-regulation and self-control associated with behaviours that support symbolically an individual's self-concept and projected identity to others. Volitional propensity deficits have been crucial to explanations of impulsivity, anxiety, and depressive disorders (Borum, 2014). These volitional propensity deficits are thought to be facilitating factors in attracting individuals to extreme ideologies and political violence. Attitudinal propensities for terrorism include: pro-violence (instrumental utility of violence to achieve personal and social goals) (p. 298); grievances (belief in-group based politically determined historical injustices) (p. 299); external threat (perceptions of threats from outside group to inside group causes defensive cognitive and emotional intensification) (p. 299); sensation-seeking (thrill driven behaviours involved in violence based risks) (p. 299); and disinhibition (justify political violence morally and neutralize empathy towards victims) (p. 299) (Borum, 2014). To conclude, Borum's (2014) review supports the view that individual risk factors are central to terrorism risk assessment. Borum (2014) argues that:

Knowledge of mental illness has little to offer other professionals with operational responsibilities for preventing and dealing with terrorism. Rather than focusing 'a psychology of terrorism' primarily on mental disorder, it might be more useful to explore vulnerabilities and propensities. Questions about a subject's motivational, attributional, volitional, emotional, and world view propensities may offer information about where a subject is on a path toward or away from involvement with terrorism and terrorist organizations (p. 300).

While it would be inadvisable for a terrorism risk assessment instrument to simply be based on DSM-5 categorical Axis traits, it is similarly true that constructing a terrorism risk assessment instrument based solely on Borum's (2014) recommended variables would be challenging. Borum's (2014) recommendation faces two main limitations. First, the suggested variables are too vague to be operationalized. Second, like many other efforts, Borum's (2014) review was conducted before the creation of the ISIS Caliphate. As discussed previously, ISIS has changed the way terrorist organization recruit and inspire (Roy, 2017a; Wasserstein, 2017).

2.3 Differences and Similarities in Personality Profiles of Terrorists and Mass Shooters

As mentioned in previous sections, much of the research surrounding personality profiles was conducted prior to the emergence of the ISIS Caliphate (Borum, 2014; Monahan, 2012). ISIS, in many respects, has changed the way terrorism recruitment operates today (Roy, 2017a; Wasserstein, 2017). Not only was ISIS, from its initial founding as Jama'at al-Tawhid wal-Jihad in 1999, considered an extraordinarily violent and unrestrained group, but it also seemed to revel in that image. Abu Musab al-Zarqawi, the founder of Jama'at al-Tawhid wal-Jihad and later leader of Al Qaeda in Iraq (AQI), was known as ruthless, remorseless, and callous amongst national security circles, as well as the Jihadist community (Wasserstein, 2017). Instead of following in the footsteps of a hierarchical, and well-organized Al Qaeda, AQI (later ISIS) has always focused on more destruction and less sophistication, indiscriminately targeting non-Muslims, Shias, and even Sunnis (Byman, 2015). Since 2011, the group now known as ISIS became the main Jihadist concern for national security agencies. Not only was ISIS committing mass atrocities in Syria and Iraq, but it was also recruiting individuals from Western countries to either commit homegrown attacks or travel to the Caliphate as foreign fighters (Byman, 2015; Wasserstein, 2017).

The recruitment process that national security agents had become accustomed to (i.e., recruiters on the ground, radicalization through in-person social networks) suddenly became less prevalent. Many homegrown terrorists started radicalizing online through ISIS propaganda without necessarily ever having talked to a group member or solely through virtual communication (Roy, 2017a; Roy, 2017b). These individuals soon became labeled as lone actors. Today, lone actor terrorists pose the largest risk to national security agencies due to the seemingly unpredictable nature of their actions. Many attacks throughout Western Europe and North America since 2011 have been committed by lone actors, inspired online through various propaganda outlets (Roy, 2017a; Roy, 2017b). Due to the rapid radicalization and seemingly swift commitment to the Jihadist ideology, the debate of whether an attack was committed by an ideologically motivated individual or simply a mass shooter has often been at the center of post-attack analysis. Not only has this debate been at the forefront of law enforcement, politics, and

the media, it has also entered the academic sphere. Although this is still an emerging academic debate, a few significant studies have been conducted examining differences and similarities in personality characteristics of terrorists/lone actors and mass shooters, homicide offenders, and mass murderers (e.g., Capellan, 2015; Horgan et al., 2016; Lankford, 2012; Liem et al., 2018)

2.3.1 Personality Profile Research in the North American Context

Lankford (2012) was one of the first researchers to discuss the apparent similarities in personality profiles of terrorists and mass shooters. He analyzed 81 cases between 1990 and 2010 in the United States, specifically focusing on terrorists, rampage, workplace, and school shooters who, as part of their attacks, attempted suicide. Lankford's (2012) research challenged the notion that suicide terrorism was a result of organizational tactics, group psychology and ideological belief systems. Like Merari, Diamant et al.'s (2009) study, Lankford (2012) found that most suicide terrorists were inherently suicidal. Furthermore, the study displayed that suicide terrorists, rampage, workplace, and school shooters shared many personality features and exhibited many similar risk factors, such as social marginalization, family problems, work or school problems, and precipitating crises. In addition, these three groups were equally likely to write a suicide note before their attack. Workplace shooters differed the most from the other offender groups. Workplace shooters were less likely to suffer from family problems and their attacks were more frequently linked to a preceding crisis event such as being fired, suspended, or reprimanded. They were also less likely to write a suicide note, which Lankford (2012) attributed to a shorter premeditation phase. Lankford's (2012) finding that terrorists, rampage, and school shooters share many similar risk factors inherently supports the idea that terrorism risk assessment needs to include personality-specific indicators, and that DSM-5 PID-based instruments have the potential of being utilized for assessing risk in distinct groups of mass shooters. Yet, mass shooters may be harder to identify in the first place as a group at risk of engaging in violence (Federal Bureau of Investigations, 2022).

Capellan (2015), like Lankford (2012), also examined similarities and differences in offender characteristics of terrorists and mass shooters. Capellan's (2015) study categorized the two groups into active shooters and ideologically active shooters. As part of the study, Capellan (2015) examined 225 cases of active shootings between 1960 and 2014, specifically identifying five variables: offender characteristics, preparation, execution, conclusion, and ideology. Although Capellan (2015) did not examine mental health/personality characteristics in-depth, many similarities were found in the offender characteristics of both groups. When examining demographic variables, Capellan (2015) found that most ideological and non-ideological active shooters were White, and in their thirties. Furthermore, both types of shooters seemed to suffer from mental illness at a rate of approximately 50 percent. Other similarities that the study identified were that both groups tended to be single or divorced, unemployed and have low levels of education. Despite these similarities, Capellan (2015) also discovered distinct differences in background characteristics. First, ideological active shooters were more likely to hold a blue-collar job and to have a criminal record (43.6 percent compared to 25 percent). Furthermore, the individuals identified as having a Middle Eastern background were mainly categorized as ideological active shooters (Capellan, 2015).

The central conclusion Capellan (2015) drew from the study was that the main differences between ideological and non-ideological active shooters did not lie within the offender characteristics but rather in the preparation and conclusion stages of the attack. Capellan (2015) identified that ideological active shooters, in general, were more methodical and that, compared to the non-ideological active shooters, there was often a lack of precipitating circumstances or crises that triggered the attack. Furthermore, ideological active shooters were more likely to plan their attack and often shared their plans with likeminded individuals. Although Capellan (2015) did not examine mental illness or personality characteristics beyond one variable – mental illness (present/not present), the study findings are still illuminating. The finding that ideological active shooters were almost twice as likely to have a criminal record, that both groups seemed to suffer from mental illness at disproportionate rates, and that both had trouble establishing meaningful and lasting relationships, all speak to the significance of Corrado's proposed instrument in assessing risk for ideological and non-ideological active shooters.

Whereas Lankford (2012) and Capellan (2015) focused on terrorists and ideologically motivated active shooters, Horgan et al. (2016) were one of the firsts to specifically examine personality differences in lone actors and mass murderers as part of a larger US-sponsored project. Using bivariate and multivariate analysis, Horgan et al. (2016) examined a sample of 71 lone actors and 115 solo mass murderers. Variables that were explored fell under three broad categories: demographic variables, psychological variables, and offense-related behavior variables. In contrast to Capellan (2015), Horgan et al. (2016) did not find a significant difference in past criminal behavior between the groups. In fact, both groups featured disproportionate rates of past convictions, with more than half (57.5 percent) of the lone wolf actors having engaged in criminal behavior, and 42.6 percent of the mass murderer sample displaying a criminal record (Horgan et al., 2016).

Furthermore, Horgan et al.'s (2016) study did not confirm Capellan's (2015) finding on generally low levels of education. Almost half of the lone actor sample displayed university experience (43.7 percent). Another finding that contradicted Capellan's (2015) study was that mass murderers seemed to be less able to form personal relationships (61.7 percent) compared to lone actors (26.8 percent). Other findings relevant to the current study were that lone actors were almost twice as likely to live alone and be considered socially isolated, when compared to mass murderers. Furthermore, lone actors also suffered from escalating anger (40.8 percent of the sample) and experienced recent stress (39.4 percent of the sample) prior to the attack (Horgan et al., 2016). Mass murderers, on the other hand, were more than twice as likely to suffer from chronic stress (62.6 percent), as well as feeling degraded (39.1 percent). Moreover, Horgan et al. (2016) identified substance abuse to be a significant indicator amongst the mass murderer sample (44.3 percent). One finding that aligned with Capellan's (2015) study was that lone actors were much more likely to communicate their plans to family and friends and a wider audience. Last, Horgan et al. (2016) found a strong desire amongst lone actors to hurt others (69 percent) and to address grievances (80.3 percent).

Although, Horgan et al. (2016) conclude that there are many similarities between mass murderers and lone actors and as such their risk can be assessed using a unitary

risk assessment tool, the study also identified significant differences central to Corrado's proposed instrument. Significant differences relating to perceived grievances and willingness to hurt others emphasize the need for the antagonism and ideology domains. Furthermore, strong findings relating to social isolation of lone actors highlight the importance of Corrado's detachment domain. Last, a criminal background seems to be a recurring trend amongst both offender groups. Domains and indicators of Corrado's proposed TRA are discussed in more detail in chapter 4 of this dissertation.

2.3.2 Personality Profile Research in the European Context

Much of the research on mass shooter/mass murderer and terrorist/lone actor offender characteristics has been based on samples reflecting the North American context. As a response to the lack of generalizability beyond this region, Liem et al. (2018) decided to conduct a study focusing on the European terrorism landscape. Inspired by previous studies conducted by Horgan et al. (2016), and Lankford (2012), Liem et al. (2018) examined a sample of 98 European lone actor terrorists and 300 non-ideologically motivated homicide offenders (referred to as common offenders). Liem et al. (2018) compared the two groups across a set of variables ranging from event characteristics, sociodemographic characteristics, to psychological background and violent history. When examining sociodemographic variables, Liem et al. (2018) found interesting similarities. First, both offender types shared a typical age range, with most of the offenders being between 25 and 39. Both offender groups also seemed to have either received a secondary education or higher and were equally classified as either employed or unemployed. Sociodemographic differences that appeared in Liem et al.'s (2018) study related to the relationship status of the two groups. The lone actor sample displayed that only 36 percent were in a relationship, whereas almost half of the common homicide offenders were romantically involved (49 percent) (Liem et al., 2018).

Distinct similarities and differences were likewise identified when studying the psychological background and violent history of the two datasets. Variables that displayed similar prevalence across the offender groups were indication of mental illness and committed suicide (Liem et al., 2018). Both groups displayed a disproportionate rate

of mental illness in line with findings of previous studies (Capellan, 2015; Horgan et al., 2016; Lankford, 2012). Liem et al. (2018) found that 37 percent of the lone actor terrorist sample displayed some form of mental illness. This rate was even higher amongst the common homicide offender sample (48 percent), indicating that risk assessment for both groups should emphasize components of mental illness and personality characteristics (Liem et al., 2018). Like Merari, Diamant, et al. (2009) and Lankford (2012), Liem et al. (2018) also focused on suicidality. Contradicting some previous research, this study did not identify suicidality as a significant motivation behind either group's offending patterns (e.g., Merari, Diamant, et al., 2009). The sample of lone actors indicated that only 11 percent of the offenders had committed suicide. This insignificance grew when examining the common homicide offender group, with only five percent having committed suicide (Liem et al., 2018). As with previously discussed studies, Liem et al. (2018) also confirmed the finding that a violent history was a strong risk indicator among lone actor terrorists and common homicide offenders. Studying the two samples, Liem et al. (2018) discovered that 33 percent of lone actors and 61 percent of common homicide offenders had a violent history. Furthermore, substance abuse was highly prevalent for 81 percent of the common homicide offender sample. This rate was not as high among the lone actor terrorist sample (21 percent) (Liem et al., 2018).

Chapter 3.

Key Constructs

3.1 Definition of Terrorism

Finding agreement on a definition of terrorism has long been a key challenge at both the political and academic level. The lack of definition has led to ambiguity in the academic, political, and legal realms. However, some argue that terrorism is such a broad phenomenon, that it may be impossible to capture it in one definition (Greene, 2017). For the purposes of this study, the definition used to capture the phenomenon of terrorism is provided by Schmid & Jongman (1988). Although, as said there is no agreement on one definition of terrorism, Schmid and Jongman (1988) created their definition by combining 109 questionnaire responses from academics in the terrorism research field. Common themes found in the questionnaire responses led to the following definition:

Terrorism is an anxiety-inspiring method of repeated violent action, employed by (semi-) clandestine individual, group, or state actors, for idiosyncratic, criminal, or political reasons, whereby—in contrast to assassination—the direct targets of violence are not the main targets. The immediate human victims of violence are generally chosen randomly (targets of opportunity) or selectively (representative or symbolic targets) from a target population, and serve as message generators. Threat—and violence—based communication processes between terrorist (organization), (imperiled) victims, and main target (audiences(s)), turning it into a target of terror, a target of demands, or a target of attention, depending on whether intimidation, coercion, or propaganda is primarily sought (Schmid & Jongman, 1988, p.28).

3.2 Threat and Risk Assessment

Threat and risk assessment are often used interchangeably although they describe different concepts. Risk assessment for violence is a more established field (Meloy et al., 2012). Risk assessment for violence is concerned with an individual's

potential for violence based on their situation in an at-risk group (Meloy et al., 2012). Whereas risk assessment is concerned with an individual's potential for violence overall, threat assessment is almost completely focused on targeted violence, also referred to as instrumental violence (Meloy, 2006; Meloy et al., 2012). Risk assessment consists of combining a set of risk factors, which have often been deemed through research to be related to a specific type of violence and creating assessment instruments out of a combination of these risk factors. Risk factors are always either static (unchangeable – e.g., criminal record) or dynamic (changeable – e.g., behavioral indicators). Risk assessment is often conducted in controlled environments such as a correctional or police setting (Meloy et al., 2012). Whereas a risk assessment is conducted within a specified time frame, threat assessment is much more dynamic and can occur while a person of interest is in the process of targeting their victim/s (Borum et al., 1999). Because most assessment of extremist/terrorist risk occurs in a specified time frame, with an instrument, determining an individual's potential to engage in political violence falls under risk assessment. As such, all the discussed TRAs fall into the category of risk assessment instruments (Meloy et al., 2012).

3.3 Clinical Judgement, Actuarial Assessment, and the Structured Professional Judgement Approach

Risk assessment is mainly conducted in three different forms, through unstructured clinical judgement, actuarial assessment, and structured professional judgement (Van der Heide et al., 2019). When examining risk assessment tools for general violence, all three approaches are common (Van der Heide et al., 2019). For terrorism risk more specifically, actuarial and structured professional judgement approaches are preferred, and the latter is far more common. Still, all three approaches should be explored when thinking about assessing risk for political violence.

3.3.1 Clinical Judgement

Clinical judgement can either be unstructured or semi-structured. The clinical judgement approach places full discretion into the hands of the assessor. Risk

assessment is conducted based on the knowledge and experience of the assessor (Van der Heide et al., 2019). Although usually conducted by a clinician, some clinical judgement risk assessments can also be conducted by other practitioners with the appropriate training. Clinical judgement has two main disadvantages when it relates to terrorism risk assessment (Van der Heide et al., 2019). First, these types of risk assessments are more vulnerable to biases. Second, without clear guidelines, important risk indicators may be missed by the assessor as they may be subjectively classified as not important. For these reasons, clinical judgement is not considered a reliable form of terrorism risk assessment (Van der Heide et al., 2019).

3.3.2 Structured Professional Judgement

Structured professional judgement is situated halfway between clinical judgement and the actuarial approach (Van der Heide et al., 2019). As seen below multiple developers of terrorism risk assessment instruments have opted for this approach (Lloyd, 2019). Structured professional judgement is based on a set of items, indicators, or questions that the assessors need to ask to assess risk (Van der Heide et al., 2019). Unlike in the actuarial approach, however, a structured professional judgement assessor, depending on the instrument, is granted different degrees of discretion. For instance, as part of one instrument discussed below, the Extremist Risk Guidelines 22+, the assessor decides whether there is a need to add more risk factors depending on the case (Lloyd, 2019). Structured professional judgement, although relatively novel, has quickly become a preferred method of risk assessment due to its high validity and reliability in follow-up studies (Van der Heide et al., 2019). Hence, it is not surprising that many terrorism risk assessment instruments have been constructed according to this approach. Although seemingly reliable, they also require large amounts of resources, including monetary resources, as well as highly trained personnel (Lloyd, 2019).

3.3.3 Actuarial Assessment

The actuarial assessment is the most objective form of risk assessment. Some actuarial risk assessment instruments can be utilized simply using file information (Van

der Heide et al., 2019). The idea behind the actuarial assessment is that the assessor is provided with information and then scores a set of questions or items. These questions or items lead to a global score which determines the level of risk (Van der Heide et al., 2019). Collection of information varies from instrument to instrument and can include in-person interviews, as well as file information (e.g., criminal record, educational record etc.) (Van der Heide et al., 2019). Actuarial Assessments are considered less vulnerable to bias due to their objective nature. They are also considered more reliable than the clinical judgement approach. Although considered more objective, some criticize this method due to its one-size-fits-all approach (Van der Heide et al., 2019). This is especially true of those supporting the structured professional judgement approach, who consider actuarial assessment to be too rigid.

Another argument brought forth against the actuarial approach is the heterogeneous nature of terrorism (i.e., different ideologies and offender groups) (Van der Heide et al., 2019). The actuarial approach is therefore considered, by some, not appropriate to use when assessing risk for terrorism or extremism (Van der Heide et al., 2019). One of the TRA instruments discussed below, RADAR-iTE 2.0 employs the actuarial approach. A validation study conducted on the RADAR-iTE 2.0 has displayed excellent interrater reliability, despite a small sample size. Yet, RADAR-iTE 2.0 only focuses on Jihadist extremism and assesses risk for those already considered at risk (e.g., returning foreign fighters, incarcerated Salafists, known terrorists) (Fernandez & de Lasala, 2021). Compared to other instruments discussed below, RADAR-iTE 2.0 likely examines a smaller group (already categorized as at risk within the Jihadist spectrum), and therefore may display better results than broader actuarial risk assessment instruments would.

3.4 Terrorism Risk Assessment Instruments

Building on the review of risk assessment approaches, this section provides an overview of the most utilized terrorism risk assessment instruments. Although there have been few validation attempts, it is important to review and assess instruments such as VERA-2R (Violent Extremism Risk Assessment 2 Revised), TRAP-18 (Terrorist Radicalization Assessment Protocol – 18), ERG22+ (The Extremist Risk Guidelines

22+), MLG (Multi-Level Guidelines), IR-46 (Islamic Radicalization-46), and RADAR-iTE 2.0 to identify strengths and weaknesses of each instrument. The review will highlight a lack of instruments inclusive towards a multitude of personality trait indicators.

3.4.1 VERA-2R (Violent Extremism Risk Assessment 2 Revised)

VERA was developed in 2009 to assess the risk for violent extremism by Pressman, Duits, Rinne, and Flockton and is based on a structured professional judgement approach (Lloyd, 2019; Pressman, 2009). The researchers believed that there was a lack of risk assessment tools specific to violent extremism and that risk assessment instruments for general criminality were unable to capture the unique nature of radicalization and potential for extremist violence (Pressman, 2009). The VERA instrument was revised from its original state to the VERA-2 and then VERA-2R based on further research (Lloyd, 2019; Pressman et al., 2017). According to Khader et al. (2016), the VERA instrument was revised in response to empirical evidence emerging from the correctional system and national security agencies. The updated version of the VERA includes more dynamic indicators and places even more focus on the radicalization process. In addition, the revised version also includes indicators relating to mental health and non-violent criminal involvement (Lloyd, 2019; Pressman et al., 2017). Items on the VERA-2R are rated on a low, moderate, and high risk scale (Lloyd, 2019; Pressman et al., 2017). According to the creators of VERA-2R, the instrument can assess risk for violent extremism across all ideologies (Pressman et al., 2017). The structure of the VERA-2R instrument can be viewed in Table 1.

Domain	Indicators
Belief, Attitudes, and Ideology	<ul style="list-style-type: none"> • Commitment to ideology that justifies violence • Perceived grievances and/or perceived injustice • Dehumanization of designated targets associated with injustice • Rejection of democratic society and values • Expressed emotions in response to perceived injustice • Hostility to national identity • Lack of empathy and understanding for those outside one's own group

Social Context and Intention	<ul style="list-style-type: none"> • Seeker, user, or developer of violent extremist materials • Target for attack identified (person, group, location) • Personal contact with violent extremists (informal or social context) • Expressed intention to commit acts of violent extremism • Expressed willingness and/or preparation to die for a cause or belief: • Planning, preparation of acts of violent extremism • Susceptibility to influence, control, or indoctrination
History, Action, and Capacity	<ul style="list-style-type: none"> • Early exposure to violence-promoting, militant ideology • Network of family and friends involved in violent extremism • Violent criminal history • Strategic, paramilitary and/or explosives training • Training in extremist ideology in own country or abroad • Organizational skills and access to funding and sources of help
Commitment and Motivation	<ul style="list-style-type: none"> • Motivated by perceived religious obligation and/or glorification • Motivated by criminal opportunism • Motivated by camaraderie, group belonging • Motivated by moral obligation, moral superiority • Motivated by excitement and adventure • Forced participation in violent extremism • Motivated by acquisition of status • Motivated by a search for meaning and significance in life
Protective and Risk-Mitigating Indicators	<ul style="list-style-type: none"> • Reinterpretation of the ideology • Rejection of violence as a means to achieve goals • Change in concept of the enemy • Participant in programmes against violent extremism • Support from the community for non-violence • Support from family members, other important persons for non-violence
Additional Indicators	<ul style="list-style-type: none"> • Client of the juvenile justice system/convicted for non-violent offence(s) • Non-compliance with conditions or supervision • Violence in family • Problematic upbringing and/or placed in juvenile care • Problems with school and work • Personality disorder • Depressive disorder and/or suicide attempts • Psychotic and schizophrenic disorder • Autism spectrum disorder • Post-traumatic stress disorder • Substance use disorder

Table 1 – Overview of Structure VERA-2R⁶

VERA-2R includes many indicators found to have relevance throughout the literature. Like Corrado’s proposed instrument (outlined in chapter 4), the creators of VERA-2R used findings from Monahan’s (2012) and Borum’s (2014) studies (among others) to create domains and indicators. Indicators that seemed relevant and were not

⁶ Information retrieved from Pressman et al. (2017), & Violent Extremism Risk Assessment 2 Revised (n.d.)

as reflected throughout other instruments relate to childhood experiences, as well as criminal involvement. As seen in Table 1, VERA-2R includes personality and mental disorder indicators. However, these indicators seemingly require diagnosed disorders and exclude those individuals displaying traits of disorders. VERA-2R is one of the most utilized instruments in terrorism risk assessment. According to Lloyd (2019), VERA-2R is in use in Europe, North America, Australia, and South-East Asia. Despite its frequent utilization in national security settings, there has been a lack of validation of the instrument. According to Hart et al. (2017), the lack of validation can largely be explained by the inaccessibility of terrorists as research subjects and the lack of transparency by national security agencies, a theme that guides many validation studies.

A study conducted by Beardsley & Beech in 2013 assessed the interrater reliability and validity of the VERA instrument. The authors scored case studies of terrorist across the VERA. Beardsley & Beech (2013) used open-source information to score the five case studies (Ted Kaczynski; Timothy McVeigh; Andreas Baader; Patrick Magee; Ikuo Hayashi). The study's findings revealed that terrorists scored high on the VERA. Beardsley & Beech (2013) concluded that although further research was necessary, the VERA could be applied to a variety of terrorist cases. Although the result suggest the relevance of VERA indicators to terrorism risk profiles, the study only used five case studies which arguably does not result in generalizable findings (Beardsley & Beech, 2013). The second validity study was conducted by the creators of the instrument, Pressman & Flockton in 2012. Pressman & Flockton (2012) scored a group of terrorists and a group of general offenders across a multitude of different risk assessment tools, including the VERA-2. The study found that the terrorist group scored significantly higher across the VERA-2 and significantly lower across general risk assessment instruments than the general offender group. Yet, they also concluded that VERA-2 only provided limited assessment of risk factors and should be accompanied by another instrument (Pressman & Flockton, 2012).

3.4.2 TRAP-18 (Terrorist Radicalization Assessment Protocol – 18)

The TRAP-18 instrument is a structured professional judgement tool that was developed by Dr. Reid Meloy, a forensic psychologist from the United States. Some unique aspects of the TRAP-18 are that it is not scored but coded and that it is a prevention tool rather than a risk assessment instrument (Lloyd, 2019; Meloy, 2018). The assessor decides whether an indicator is present or not present. Indicators are not counted but coded and as such there are no cut off points (Meloy, 2018). Furthermore, the TRAP-18, like the ERG22+, places much discretionary power in the assessor (Lloyd, 2019; Meloy, 2018). The TRAP-18 instrument is currently in use in the United States, Canada, and Europe, however, it has not been adopted by any national government (Lloyd, 2019). Meloy created 18 indicators based on literature, not only from the terrorism realm but also from other violent crime such as mass killings and homicide (Meloy, 2018; Meloy et al., 2021). The TRAP-18 is based on eight proximal warning behaviors and ten characteristic indicators (Meloy, 2018; Meloy et al., 2021). The structure of the TRAP-18 instrument can be viewed in Table 2.

Domain	Indicator	Context
Proximal Warning Behaviors	Pathway Warning Behavior	Research and planning of an attack
	Fixation Warning Behavior	Fixation on person or cause/ deterioration of social and/or work life
	Identification Warning Behavior	Warrior mentality
	Novel Aggression Warning Behavior	Act of violence unrelated to target/ primary test of aggression
	Energy Burst Warning Behavior	Increase in frequency or variety of activities related to target
	Leakage Warning Behavior	Communicating intent to do harm
	Last Resort Warning Behavior	Sign of desperation or distress The subject must act now – no other choice

	Directly Communicated Threat Warning Behavior	Communicating immediate threat to target or law enforcement
Distal Characteristics	Personal grievance and moral outrage	Life experience combined with historical, religious, or political events
	Framed by an ideology	Belief system that justifies the subject's intent to act
	Failure to affiliate with an extremist or other group	Rejection by a radical, extremist, or other group the subject wanted to join
	Dependence on the virtual community	Virtual interaction through the use of chat rooms, social media etc.
	Thwarting of occupational goals	Setback in educational or occupational goals
	Changes in thinking and emotion	Thoughts become more stringent, simplistic, and absolute over time
	Failure of sexually intimate pair bonding	Failure to create lasting intimate sexual relationships with other people
	Mental Disorder	Evidence of present or past major mental disorder
	Creativity and innovation	Tactical thinking "outside of the box"
	Criminal violence	History of engagement in violent criminality

Table 2 - Overview of Structure TRAP-18⁷

⁷ Information retrieved from Meloy et al. (2021)

As discussed above, Meloy created the TRAP-18 indicators drawing on a multitude of research areas including violent offending, mass killing, terrorism, and homicide studies (Meloy et al., 2021). Compared to other instruments, the TRAP-18 includes fewer indicators. While this may have the advantage of being more simplistic and easier to apply, a smaller number of indicators can also result in a less accurate risk assessment. Although the TRAP-18 includes a “mental health” indicator, this indicator is kept quite simplistic. Evidence of present or past major mental disorder like the VERA-2R assumes a diagnosis. This automatically excludes anyone who has not been diagnosed or displays certain traits of a major personality disorder. The TRAP-18 has undergone few validation studies (Lloyd, 2019). One noteworthy study was conducted by Challacombe & Lucas in 2018. The study assessed the interrater reliability of the TRAP-18 instrument. The study looked at 58 individuals or organizations associated with the Sovereign Citizens movement in the United States. From this sample, 30 had committed a violent offense and 28 were classified as non-violent. Both groups were subjected to being assessed by two raters across the 18 instrument indicators. Results displayed good interrater reliability across the indicators. The average kappa value for proximal warning behaviors was $k = .687$ and for distal characteristics $k = .812$ (Challacombe & Lucas, 2018).

Another study that assessed the validity of the TRAP-18 instrument was conducted by Hoffmann et al. in 2011. The study looked at attacks on German political figures between 1968 to 2004. This validation study only examined non-terrorist offenders and had a relatively small sample size of only 14 offenders. The authors themselves admitted to significant limitations due to the small sample size of their study. The limitations included only being able to use observational, descriptive, and archival data, as well as not being able to use any inferential statistics. The study found that several of the warning behaviors outlined by the TRAP-18 were found in the reviewed cases, including fixation and pathway warning behaviors (Hoffmann et al., 2011). A more recent validation study conducted in 2021 examined the TRAP-18 using the time sequence method. Meloy et al. (2021) used a sample of 125 lone actors from Europe and the United States to assess the predictive strength of the TRAP-18 instrument. The authors found that almost all distal characteristic indicators preceded proximal warning behaviors such as fixation and pathway. It was also identified that certain “turning points” were impactful in individuals’ pathways to violence. These “turning points” are also

relevant to Corrado’s proposed instrument as he has identified Sampsons & Laub’s (2016) “structural turning points” (e.g., successful employment, academic achievement, stable intimate relationship, fatherhood/motherhood) to be important features in a person’s self-identity. This will be discussed further in the next section of this dissertation.

3.4.3 ERG22+ (The Extremist Risk Guidelines 22+)

The ERG22+, like the TRAP-18, is a structured professional judgement tool used and developed by Her Majesty’s Prison and Probation Service (HMPPS) in the United Kingdom (Lloyd, 2019; Powis et al., 2021). The ERG22+ is one of the most dynamic instruments as it allows for additional indicators to be added as seen fit by the administrator when working with individuals (Lloyd, 2019; Powis et al., 2021). The ERG22+ needs to be administered by psychologists or seasoned probation officers (Lloyd, 2019; Powis et al., 2021). The ERG22+ is scored on the basis of ‘strongly present’, ‘partly present’ and ‘not present’. The ERG22+ was developed for extremist and non-extremist offenders, serving as a tool both for terrorists and non-terrorists (Lloyd, 2019; Powis et al., 2021). The ERG22+ can only be used for risk assessment through participation of the assessee. The use of the ERG22+ includes an interview with the individual, as well as written comments from the individual. The use of interviews with family and friends is also encouraged. Some additional relevant sources of information may be utilized (Lloyd, 2019; Powis et al., 2021). The structure of the ERG22+ instrument can be viewed in Table 3.

Domain	Indicator
Engagement	<ul style="list-style-type: none"> • Need to redress injustice • Need to defend against threats • Identity, meaning & belonging • Need for status • Excitement, comradeship & adventure • Need to dominate others • Susceptibility to indoctrination • Political, moral motivation • Opportunistic involvement • Family and/or friends support extremism • Transitional periods • Group influence and control

	<ul style="list-style-type: none"> • Mental Health Issues
Intent	<ul style="list-style-type: none"> • Over-identification with group, cause • Us & them thinking • Dehumanisation of the enemy • Attitudes that justify offending • Harmful means to an end • Harmful end objectives
Capability	<ul style="list-style-type: none"> • Personal knowledge, skills, competencies • Access to networks, funding, equipment • Criminal history

Table 3 – Overview of structure ERG22+⁸

According to Lloyd (2019), two validation studies were conducted on the ERG22+. One assessed various forms of validity (Powis et al., 2021). Another examined the interrater reliability of the instrument (Powis et al., 2019). Powis et al. (2021) used a set of 171 completed ERG22+ surveys to assess the validity of the instrument. The authors found that several risk factors were strongly or partly present for a large set of the sample. These indicators were needed to redress injustice, need for identity, meaning and belonging, political and moral motivation, attitudes that justify offending, and access to networks, funding, and equipment. Indicators that displayed low scores were needed to dominate others, opportunistic involvement, mental health issues, and harmful end objectives (Powis et al., 2021). The most common added risk factor was substance abuse. The researchers also found that the instrument had strong internal reliability (Powis et al., 2021). Another study assessing validity of the instrument, conducted by Powis et al. in 2019, utilized two raters with over five years of experience administering ERG22+. Both raters were presented with 50 cases of convicted terrorists and asked to score them (0=not present, 1=partly present, 2= strongly present) based on case file information, interview records, and background information. The results of this study displayed very high agreement between both raters across all indicators, with kappa scores ranging from $k = .81-1$ (Powis et al., 2019).

⁸ Information retrieved from Powis et al. (2021).

3.4.4 MLG (Multi-Level Guidelines)

The Multi-Level Guidelines were created in 2014 by Cook. Like the TRAP-18 and ERG22+, the MLG is a structured professional judgement tool that is currently in use in North America and Europe (Cook, 2014; Lloyd, 2019). The aim of the MLG is to prevent not predict violence. Although the creators of the MLG assert that direct contact with the subject is not necessary, it is preferred if possible (Cook, 2014; Lloyd, 2019). Like the TRAP-18 and the ERG22+, the MLG also grants the assessor large scale discretion. For instance, the assessor decides which risk factors are present, as well as relevant, and creates a management plan for each individual based on their risk level. However, although provided with large scale discretion, the MLG is aimed at a broad range of practitioners (e.g., criminal justice, security; mental health professionals) (Cook, 2014; Lloyd, 2019). Furthermore, the MLG is an open-access tool, purchasable by anyone without required training (Hart et al., 2017). The MLG consists of 20 indicators placed on four domains. The MLG is scored on a three-point scale (present, possibly or partially present, absent) (Cook, 2014). The structure of the MLG instrument can be viewed in Table 4.

Domain	Indicator
Individual	<ul style="list-style-type: none"> • Violent Behavior • Escalation in Violent Behavior • Nonviolent Criminal Behavior • Problems Resulting from Victimization • Mental Health Problems • Lack of Pro-Social Integration
Individual-Group	<ul style="list-style-type: none"> • Group-Based Identity • Violent Role or Status in Group • Commitment to Group • Negative Attitudes Toward Out-Group
Group	<ul style="list-style-type: none"> • Group Violence • Escalation of Group Violence • Violent Group Norms • Group Cohesion • Strong Violent Leadership • Isolative Group
Group-Societal	<ul style="list-style-type: none"> • Intergroup Threat • Perceived Injustice • Extreme Social Status of the Group

	• Social Instability
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Table 4 - Overview of structure MLG⁹

Like other reviewed instruments (e.g., TRAP-18 and ERG22+), the MLG also only includes one indicator referring to the mental health of the assessed subject (Hart et al., 2017). There have been two noteworthy validation studies conducted on the MLG. One such study was conducted by Cook (2014) as part of a doctoral dissertation. Cook (2014) found that interrater reliability across MLG indicators ranged from poor to excellent. Items that displayed high Intraclass Correlation Coefficients (ICC) were violent behavior, nonviolent criminal behavior, and mental health problems. Items with the lowest ICC were group cohesion, social instability, intergroup threat, and lack of pro-social integration (Cook, 2014). A more recent study conducted by Hart et al. (2017) further examined the validity of the MLG. Hart et al. (2017) conducted a multi-faceted validation study by using a multitude of risk assessment tools (VERA-2R, HCR-20 V3 (Historical Clinical Risk Management -20 Version 3), and the MLG) to assess five terrorist cases. Hart et al. (2017) utilized Beardsley's and Beech's (2013) case studies to assess interrater strength of the MLG. The cases were scored by four raters. The results displayed that those indicators falling into the future violence category were assessed as having good interrater reliability. Yet, the items pertaining to serious physical harm and imminent violence displayed fair scores. However, when examining the ratings for presence of risk factors, 14 out of 16 items displayed excellent reliability. Although promising, as discussed above the small sample likely led to non-generalizable results. Although Hart et al. (2017) conducted further analysis to examine correlations between the MLG and the HCR-20 V3, as well as the VERA-2R, those results are not significant to the current study.

3.4.5 IR-46 (Islamic Radicalization-46)

Whereas the previously discussed instruments aim at predicting or preventing risk more broadly (i.e., applicable to all streams of extremism or all streams of violent criminality), two instruments that assess risk in a more exclusive manner are the IR-46 and the RADAR-iTE 2.0. Both instruments exclusively focus on radicalization and assessment of risk within the Jihadist spectrum. Although not often discussed as part of

⁹ Information retrieved from Cook (2014)

the main terrorist risk assessment instruments, it is crucial to review both the IR-46 and the RADAR-iTE 2.0 as the second step in the validation of Corrado’s proposed instrument examines the need for ideology categorized risk assessment. The IR-46 was developed in 2016 by the Dutch Police in cooperation with the Ministry of Defense and the Ministry of Justice and Safety and is considered a structured professional judgement instrument (Fernandez & de Lasala, 2021; Lloyd, 2019). The instrument is based on academic literature and research findings and is updated every three years. The instrument is aimed at identifying Jihadist radicalization in any person above 12 years old and is intended to be used before a crime has occurred (Fernandez & de Lasala, 2021). This stands in contrast to some of the other risk assessment tools discussed above which can be utilized at multiple stages in the criminal trajectory (e.g., MLG and ERG22+), as well as some that are exclusively used in correctional settings (e.g., RRAP (The Radicalisation Risk Assessment in Prison)) (Fernandez & de Lasala, 2021). The IR-46 was initially created following a stage-model approach as discussed previously in the literature review (Lloyd, 2019). This means that risk is assessed based on involvement within the extremist cause/organization (Moghaddam, 2005). However, since its installment the IR-46 has been reviewed and updated to now focus on empirical research findings. The IR-46 was tested on a sample of 240 known radicalized individuals (at three separate time points). The findings from this study now guide the IR-46 risk assessment instrument application (Lloyd, 2019). Since this terrorism risk assessment instrument is an in-house tool, there is limited information available about the indicators or system used. Furthermore, there are to date no peer-reviewed studies openly available. Fernandez & de Lasala (2021) reviewed a multitude of terrorism risk assessment instruments as part of a larger European Commission funded project and broadly displayed the structure of the IR-46 instrument (see Table 5).

	Ideology	Social Context
Phases		Jihad/Extremism
		Jihadisation
		Social Estrangement
		Preliminary Phase

Table 5 – Overview IR-46 Instrument¹⁰

¹⁰ Information retrieved from Fernandez & de Lasala (2021)

3.4.6 RADAR-iTE 2.0 (Rule-based analysis of potentially destructive perpetrators to assess acute risk – Islamist terrorism)

RADAR-iTE was created by the German Federal Police (BKA) in cooperation with researchers from the University of Konstanz and is an actuarial risk assessment tool. Like the IR-46, RADAR-iTE focuses exclusively on risk emerging from the Jihadist spectrum and is also considered an in-house terrorism risk assessment instrument. RADAR-iTE was developed in 2017 and overhauled a year later leading to the currently in use, RADAR-iTE 2.0. According to Fernandez & de Lasala (2021), RADAR-iTE 2.0 is often referred to as a “predictive policing tool for Jihadists” because its target population includes those already considered very high risk (e.g., foreign fighter returnees, well-known terrorists, and incarcerated Salafist Jihadists about to be released from prison). RADAR-iTE 2.0 works as a two-stage system. First all relevant information regarding the individual is collected and compiled by a police officer in charge of monitoring the at-risk person. The second stage refers to the actual scoring of the questionnaire. The questionnaire consists of 73 items which can be answered with “Yes”, “No”, or “Unknown”. RADAR-iTE 2.0 categorizes individuals as “high risk” and “moderate risk”. This information is relayed to the responsible police officer. Like with the IR-46, due to its nature as an in-house risk assessment instrument, RADAR-iTE 2.0’s domains and indicators are not publicly available. However, according to Fernandez & de Lasala (2021) indicators refer to personal life, social life, social networks, travel history (in association with an extremist cause), and history of criminality. According to Sadowski et al. (2021), the RADAR-iTE 2.0 has undergone some reliability testing. One noteworthy validation attempt saw a group of 12 police officers rate ten cases of known terrorists. Interrater reliability was assessed by examining the ICC score. The ICC score for the sum score, as well as the different risk categories was .91 indicating strong interrater reliability. Yet, as with previous studies (e.g., Beardsley & Beech, 2013; Hart et al., 2017) the sample size upon which these results are based is very small and therefore insufficient for the requirements of generalization.

Chapter 4.

DSM-5 PID-based Terrorism Risk Assessment Instrument

Having discussed the strengths and limitations of existing terrorism risk assessment instruments currently in use, this section of the dissertation will provide an in-depth overview of Corrado's proposed DSM-5 PID-based instrument (Corrado & Doering, 2021). Before going into the specific details of Corrado's proposed terrorism risk assessment instrument, the need for it should be outlined. As the review of current terrorism risk assessment instruments in chapter 3 has displayed, there is a limited number of instruments incorporating mental health, mental disorder, or personality trait and disorder indicators. Instruments such as the ERG22+ or MLG merely include one risk factor relating to the subject matter. Currently the VERA-2R is clearly the most inclusive instrument. It includes six indicators relating to a variety of disorders (mental and personality). Yet, risk indicators included in the VERA-2R seem to require an individual to be diagnosed with the disorder to be recognized on the VERA-2R instrument. This can lead to missed risk indicators when an individual possesses certain traits of a mental or personality disorder but does not necessarily meet all requirements for full diagnosis. Corrado has argued that although some instruments have more recently begun including mental health, mental disorder, or personality disorder indicators, arbitrary cut-off points have potential to lead to false negatives (Corrado & Doering, 2021). As such Corrado argues the need for more incorporation of DSM-5 PID-based indicators that relate to traits of mental and personality disorder rather than full diagnoses. While acknowledging the importance of other risk factors (e.g., ideology and criminal history), Corrado believes that terrorism risk assessment instruments need to be supplemented with DSM-5 PID-based indicators (Corrado & Doering, 2021).

Having discussed the need for a DSM-5 PID-based terrorism risk assessment instrument, the next part of the chapter outlines the domains and indicators of Corrado's proposed instrument (Corrado & Doering, 2021). The proposed DSM-5 PID-based TRA, like most of the above-discussed instruments, assumes a structured professional judgement approach to assess risk. The instrument is designed to be utilized by national

security agencies and the domains and indicators result in a global score of risk. As seen in the overview presented in Table 6, the instrument emphasizes mental attributes of perpetrators. This stands in stark contrast to many of the socio-psychological models currently in use (Lloyd, 2019). Furthermore, Corrado’s risk assessment instrument includes both static (unchangeable – e.g., criminal record) and dynamic (changeable – e.g., behavioral indicators) indicators (Corrado & Doering, 2021; Meloy et al., 2012). Indicators are scored as “present (2), “partly present” (1), and “not present” (0). The global score for the instrument consists of the sum of all indicators. First, an overview of the domains, and indicators is provided. Second, the origin and purpose of the domains is explained. Last, a discussion regarding the assessment questions of Corrado’s proposed instrument concludes the chapter.

4.1 General Overview

Table 6 displays the instrument’s proposed domains, indicators, and the origins of the domains.

Origin	Domain	Indicators
DSM-5-PD	Detachment	<ul style="list-style-type: none"> • Withdrawal • Depressivity • Anhedonia • Intimacy Avoidance • Suspiciousness
DSM-5-PD	Negative Affectivity	<ul style="list-style-type: none"> • Emotional Dysregulation • Anxiety • Hostility • Perseveration • Restricted Affect
DSM-5-PD	Antagonism	<ul style="list-style-type: none"> • Manipulative • Deceitful • Grandiose • Callousness • Attention Seeking

DSM-5-PD	Disinhibition	<ul style="list-style-type: none"> • Irresponsible • Impulsivity • Distractibility • Risk Taking • Rigid Perfectionism
DSM-5-PD	Psychoticism	<ul style="list-style-type: none"> • Unusual Beliefs & Experiences • Eccentricity • Perceptual Dysregulation
CAPP	Cognitive	<ul style="list-style-type: none"> • Intolerance • Inflexible • Disillusionment • Planfulness (lack of)
CAPP	Identity	<ul style="list-style-type: none"> • Self-Identity: Sense of Invulnerability • Self-Identity: Self-Justifying • Self-Identity: Unstable Self-Concept • Group Identity: Social Support Networks (gangs, religious group, online community) • Group Identity: Online Activity
New Domain	Ideology	<ul style="list-style-type: none"> • Ideological world view that condones violent political action • Claims affiliation to an extremist group or cause • View that injustices can be addressed through violent means no matter how extreme • View that the public is blind to or enabling injustice
New Domain	Criminality	<ul style="list-style-type: none"> • History of low-level criminality • History of violent criminality • History of intimate partner violence • History of gang/criminal organization involvement • History of violence or threatening behaviour motivated by bias

Table 6 – Outline of Corrado’s proposed DSM-5 PID-based terrorism risk assessment instrument¹¹

¹¹ Information retrieved from Corrado & Doering (2021)

Corrado’s instrument consists of a total of nine domains, and 41 indicators. Each domain includes three to five indicators which are assessed using three questions. The assessment questions are discussed in more detail in the later part of this chapter. Five of the nine instrument domains derive from the DSM-5 PID paradigm. Another two have been partly acquired from the CAPP instrument and two additional domains were added based on information from academic research and case studies (Corrado & Doering, 2021; Corrado et al., 2012). Each domain will be discussed in detail throughout the next section of this overview.

4.2 Domain Overview

As discussed above, most of the domains in this instrument derive from the Personality Inventory of the DSM-5 (American Psychiatric Association, 2013). The Detachment, Negative Affectivity, Antagonism, Disinhibition and Psychoticism domains were included in the instrument by translating the DMS-5 PID self-report questionnaire into third-party assessment questions. Benefits and disadvantages of this methodology are discussed in more detail in the ‘assessment question’ section of this overview (Corrado & Doering, 2021).

4.2.1 Detachment Domain

The detachment domain is based on the DSM-5 PID and includes five indicators: withdrawal, depressivity, anhedonia, intimacy avoidance, and suspiciousness. Assessment questions for these indicators derive from the self-report questionnaire of the DSM-5 PID (see Table 7).

Withdrawal	<p>Q1: Does the subject appear to have or be withdrawing themselves from their parents and family?</p> <p>Q2: Does the subject appear to have or be withdrawing from friends and/or acquaintances?</p> <p>Q3: Does the subject appear to have or be withdrawing from an organization, community, or group? Alternatively, is the subject</p>
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	irregular contact with a group, but withdrawing from many other relationships?
Depressivity	<p>Q1: Does the subject demonstrate mood dominated by dejection, gloominess, cheerlessness, guilt, joylessness and /or unhappiness?</p> <p>Q2: Does the subject's self-concept centre on beliefs of inadequacy, worthlessness, and low self-esteem?</p> <p>Q3: Does the subject demonstrate negativism, criticism and is judgemental towards others?</p>
Anhedonia	<p>Q1: Does the subject demonstrate and/or communicate feelings of emotional emptiness about their life and activities?</p> <p>Q2: Does the subject demonstrate and/or communicate an inability to find pleasure in life?</p> <p>Q3: Does the subject demonstrate and/or communicate disinterest in social contact, social withdrawal and/or decreased pleasure in social situations?</p>
Intimacy Avoidance	<p>Q1: Does the subject demonstrate and/or communicate an avoidance of intimate physical relationships?</p> <p>Q2: Does the subject demonstrate and/or communicate an avoidance of intimate emotional relationships?</p> <p>Q3: Does the subject demonstrate and/or communicate fear or apprehension in emotional or physical openness and vulnerability?</p>
Suspiciousness	<p>Q1: Does the subject demonstrate and/or communicate mistrust in the motives of others and believe that others want to harm them?</p> <p>Q2: Does the subject demonstrate and/or communicate a reluctance to confide in others?</p> <p>Q3: Does the subject demonstrate or communicate a bearing of grudges, or finding demeaning or threatening subtext in the most innocent of comments or events?</p>

Table 7 – Detachment domain indicators and assessment questions¹²

4.2.2 Negative Affectivity

The negative affectivity domain is based on the DSM-5 PID and includes five indicators: emotional dysregulation, anxiety, hostility, perseveration, and restricted affect.

¹² Information retrieved from Corrado & Doering (2021)

Assessment questions for these indicators derive from the self-report questionnaire of the DSM-5 PID (see Table 8).

Emotional Dysregulation	<p>Q1: Does the subject experience angry outbursts?</p> <p>Q2: Does the subject demonstrate outbursts of aggression towards themselves or others?</p> <p>Q3: Does the subject demonstrate or communicate threats to kill themselves?</p>
Anxiety	<p>Q1: Does the subject communicate and/or demonstrate an expectation of a future threat?</p> <p>Q2: Does the subject have subjectively unpleasant feelings of dread over anticipated events, such as a feeling of imminent death?</p> <p>Q3: Does the subject demonstrate or communicate a state of inner turmoil, including restlessness, fatigue, and problems in concentration?</p>
Hostility	<p>Q1: Does the subject demonstrate or communicate antagonism and hatred towards others?</p> <p>Q2: Does the subject willfully refuse to accept evidence that their perceptions/opinions are wrong?</p> <p>Q3: Does the subject attempt to force or coerce evidence to fit their view/opinion, however harmful the cost?</p>
Perseveration	<p>Q1: Does the subject demonstrate a lack of ability to transition or switch ideas appropriately with the social context?</p> <p>Q2: Does the subject communicate by repeating a particular response (words, phrase, or gesture) after it ceased to be socially relevant or appropriate?</p> <p>Q3: Is the subject unable to undertake set shifting (changing of goals, task, or activities) as required?</p>
Restricted Affect	<p>Q1: Does the subject have restricted or muted emotional expression than what would be expected?</p> <p>Q2: Does the subject fail to display feelings, either verbally or nonverbally, including little animation in facial expression or vocal inflection, when talking about issues that would normally be expected to engage the emotions (such as discussing extreme violence)?</p> <p>Q3: Does the subject have difficulty describing both their positive and negative feelings?</p>

Table 8 – Negative affectivity domain indicators and assessment questions¹³

¹³ Information retrieved from Corrado & Doering (2021)

4.2.3 Antagonism

The antagonism domain is based on the DSM-5 PID and includes five indicators: manipulative, deceitful, grandiose, callousness, and attention seeking. Assessment questions for these indicators derive from the self-report questionnaire of the DSM-5 PID (see Table 9).

<p>Manipulative</p>	<p>Q1: Does the subject set up others to take blame for what they have done?</p> <p>Q2: Does the subject build relationships solely for the purpose of promoting their self-interests?</p> <p>Q3: Does the subject have a sufficient level of ruthlessness to have no qualms about causing harm to others in order to achieve their objectives?</p>
<p>Deceitful</p>	<p>Q1: Does the subject lie easily and without anxiety?</p> <p>Q2: Does the subject conceal relevant information when questioned?</p> <p>Q3: Does the subject engage in deception through communication or omission in order to preserve or enhance their identity/self-image?</p>
<p>Grandiose</p>	<p>Q1: Does the subject communicate or demonstrate an unrealistic sense of superiority in a sustained view of themselves as better than others and views others with disdain or as inferior?</p> <p>Q2: Does the subject communicate or demonstrate a sense of their own uniqueness?</p> <p>Q3: Does the subject communicate or demonstrate the belief that few others have anything in common with them and that they can only be understood by a few or very special people?</p>
<p>Callousness</p>	<p>Q1: Does the subject communicate or exhibit a lack of caring towards others or in appropriate situations?</p> <p>Q2: Does the subject communicate or exhibit an insensitive and cruel disregard for others?</p> <p>Q3: Does the subject remain unemotional in situations where an emotional response would be expected?</p>

Attention Seeking	<p>Q1: Does the subject seek attention due to jealousy towards another person who has attention?</p> <p>Q2: Does the subject appear to lack self-esteem and seek attention to compensate and restore attention to themselves?</p> <p>Q3: Does the subject appear to seek attention due to their own narcissism and they strive to feed their ego with attention?</p>
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Table 9 – Antagonism Domain Indicators and Assessment Questions¹⁴

4.2.4 Disinhibition

The disinhibition domain is based on the DSM-5 PID and includes five indicators: irresponsible, impulsivity, distractibility, risk taking, and rigid perfectionism. Assessment questions for these indicators derive from the self-report questionnaire of the DSM-5 PID (see Table 10).

Irresponsible	<p>Q1: Does the subject fail to complete tasks, break promises, or cannot be relied upon?</p> <p>Q2: Does the subject have a history of not being trusted or dependable by others?</p> <p>Q3: Does the subject communicate or demonstrate they are not answerable and/or accountable to any higher authority?</p>
Impulsivity	<p>Q1: Does the subject do things without thinking of the consequences?</p> <p>Q2: Does the subject communicate or demonstrate a failure to resist a temptation, urge or impulse that may harm themselves or others?</p> <p>Q3: Does the subject communicate or demonstrate a hedonic quality during the impulsive behaviour?</p>
Distractibility	<p>Q1: Does the subject have difficulty completing tasks or sustaining attention?</p> <p>Q2: Does the subject have to be actively directed to attend/respond to questioning?</p> <p>Q3: Does the subject communicate or demonstrate their attention is easily distracted by small and irrelevant stimuli?</p>
Risk Taking	<p>Q1: Is there any evidence of the subject getting pleasure from taking risks?</p>

¹⁴ Information retrieved from Corrado & Doering (2021)

	<p>Q2: Does the subject engage in risk taking activity in day-to-day life, including drug use, or driving drunk?</p> <p>Q3: Does the subject demonstrate characteristics of being fickle, hot-tempered, exploratory, extravagant, and/or excitable?</p>
Rigid Perfectionism	<p>Q1: Does the subject communicate or demonstrate intolerance of mess and disorganization, striving for perfection around them?</p> <p>Q2: Does the subject communicate or demonstrate extremely high expectations/demands from relationships in their life, experiencing disappointment, anger, and resentment in their interpersonal relationships?</p> <p>Q3: Does the subject communicate or demonstrate their belief in the value of perfect production, achievement, or service in every aspect of their life?</p>

Table 10 – Disinhibition domain indicators and assessment questions¹⁵

4.2.5 Psychoticism

The psychoticism domain is based on the DSM-5 PID and includes three indicators: unusual beliefs & experiences, eccentricity, and perceptual dysregulation. Assessment questions for these indicators derive from the self-report questionnaire of the DSM-5 PID (see Table 11).

Unusual Beliefs & Experiences	<p>Q1: Does the subject communicate special or unusual abilities?</p> <p>Q2: Does the subject communicate unusual perception of others' thoughts and/or actions?</p> <p>Q3: Does the subject believe they are inspired or empowered to a cause or issue by a metaphysical power or force?</p>
Eccentricity	<p>Q1: Does the subject frequently have unusual or contrarian ideas?</p> <p>Q2: Does the subject believe in conspiracy and/or anti-government theories?</p> <p>Q3: Does the subject subscribe to unusual or unorthodox solutions to societal problems?</p>
Perceptual Dysregulation	<p>Q1: Does the subject communicate little or no division between waking life and fantasy?</p> <p>Q2: Does the subject actively maintain and communicate fantasies or fantasy environments?</p>

¹⁵ Information retrieved from Corrado & Doering (2021)

	Q3: Does the subject believe they are experiencing an unreal environment around them?
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Table 11 – Psychoticism domain indicators and assessment question

4.2.6 Cognitive

The previous five domains discussed, all derived from the DSM-5 PID framework. The sixth and seventh domain of Corrado’s instrument are based on the CAPP instrument (Corrado et al., 2012). As shown in Table 6, the Cognitive domain focuses on the ability to understand and internalize information. For the purpose of terrorism risk assessment, this refers to, for example political decision-making, historical context, science, and economics. This domain was established based on the assumption that individuals attracted to extremist ideology likely deny information inconsistent with their belief and value system. The cognitive domain was initially included in the CAPP model because psychology-based criminological theories often assert that acts of manipulation, aggression and violence are justified by perceiving the victims as deserving or ultimately being responsible i.e., victim blaming (Corrado et al., 2012). Applying this assumption to the terrorism context, one can see that organizations would likely make use of historical and contemporary economic, political, cultural, and social grievances to attract and manipulate individuals. Furthermore, they utilize these grievances to justify killing innocent people. This domain is also related to the idea that terrorist organizations seek individuals who are inherently susceptible to knowledge isolation (i.e., unwillingness to consider ideologically non-confirming information or enhancing confirmation bias). Last, the domain addresses the predisposition of individuals to adhering to authority without question; potentially resulting in the commission of a terrorist attack (Corrado & Doering, 2021). The cognitive domain includes four indicators: intolerance, inflexible, disillusionment, and planfulness (lack of). Assessment questions for these indicators can be seen in Table 12.

Intolerance	<p>Q1: Does the subject communicate opinions that certain groups and/or people deserve less or more respect than others?</p> <p>Q2: Does the subject communicate about certain groups and/or people in terms of power imbalance?</p> <p>Q3: Does the subject communicate using any language of xenophobia, hatred, or violent extremism?</p>
Inflexible	<p>Q1: Does the subject communicate from a singular opinion or position without deviation?</p> <p>Q2: Does the subject communicate opinions, views and values in absolutist and uncompromising terms?</p> <p>Q3: Does the subject communicate in a way that their opinion or perspective is superior to all others?</p>
Disillusionment	<p>Q1: Does the subject communicate about their environment, society and/or the future in cynical terms?</p> <p>Q2: Does the subject communicate cynicism about previously held beliefs, values, opinions?</p> <p>Q3: Does the subject communicate about being freed or liberated from false beliefs or illusions?</p>
Planfulness (lack of)	<p>Q1: Does the subject make intricate and detailed personal planning about their life and/or activities?</p> <p>Q2: Does the subject lack any willingness or ability to plan for their life and/or activities?</p> <p>Q3: Does the subject react to challenges and situations by making elaborate plans or by avoiding planning altogether?</p>

Table 12 – Cognitive domain indicators and assessment questions¹⁶

4.2.7 Identity

The Identity domain, like the Cognitive domain, derives from the CAPP (Corrado et al., 2012). It has been modified to include two additional indicators representing group-based influences: involvement in social support networks and online activities. Definition of oneself remains an important factor in motivations for violent offending including terrorism (Corrado & Doering, 2021). The original CAPP indicators --- invulnerability and self-justified--- therefore seem crucial to include in the TRA (Corrado et al., 2012). However, contemporary academic research, as well as traditional theories have highlighted group identity as an important factor in the radicalization and recruitment of individuals into terrorist organizations (King & Taylor, 2011). The social

¹⁶ Information retrieved from Corrado & Doering (2021)

support networks and online activities indicators represent a more recent and largely global phenomena. Individuals often seek online communities to build relationships with others. These relationships can be superficial but for some result in emotional, sometimes even intimate bonds (Callimachi, 2015; King & Taylor, 2011). The unstable self-identity trait has been identified as a crucial motivation for violence by researchers in the field of developmental and life course criminology perspective. The often-referenced age crime curve reaches its height in the developmental period where self-identity is most unstable 14-16 years of age (Moffitt, 2018). Yet, recent research has also identified a stable serious and violent trajectory into young and early middle adulthood (Corrado et al., 2015; McCuish et al., 2015). The central argument for this pathway includes the possibility that unstable self-identity continues into the adulthood periods due to this trait being associated with psychopathy and/or not being mitigated by a “turning point” prosocial event (e.g., successful employment, academic achievement, stable intimate relationship, fatherhood/motherhood) (Sampson & Laub, 2016).

To add, there has also been substantial neuroscience research suggesting that brain neuron pruning crucial to frontal cortical maturation and executive functioning (EF) can occur around age 25. It is therefore very likely that there is a relationship between EF and stable self-identity especially since the former is associated with planning, task completion, thoughtfulness, which arguably reinforce stable self-identity (Arain et al., 2013; Corrado & Mathesius, 2014). Considering these advances in neuroscience research, it seems reasoned to assume that neuroscientific factors such as those discussed, can possibly contribute to the susceptibility of younger individuals to rapid identity shifts associated with terrorist recruitment strategies. This argument seems to be strengthened by the example of ISIS' success at radicalizing youth and convincing them to join the Caliphate (Wasserstein, 2017). For the reasons discussed above, Corrado decided to include the identity domain. This domain includes five indicators: self-identity: sense of invulnerability, self-identity: self-justifying, self-identity: unstable self-concept, group identity: social support networks (gangs, religious group, online community), and group identity: online activity. Assessment questions for these indicators can be seen in Table 13.

<p>Self-Identity: Sense of Invulnerability</p>	<p>Q1: Does the subject deny their failures, or fear failure due to loss of face?</p> <p>Q2: Does the subject believe that they can meet any challenge regardless of the required skill level/experience?</p> <p>Q3: Does the subject believe that nothing can get in the way of what they want?</p>
<p>Self-Identity: Self-Justifying</p>	<p>Q1: Does the subject minimize problems that have occurred, despite evidence to the contrary?</p> <p>Q2: Does the subject minimize, deny, or blame other factors for their role in their offences?</p> <p>Q3: Does the subject minimize personal weaknesses and areas for change?</p>
<p>Self-Identity: Unstable Self-Concept</p>	<p>Q1: Is the subject markedly different around different people, or in different situations?</p> <p>Q2: Does the subject have difficulty keeping promises or fulfilling obligations?</p> <p>Q3: Is the subject confused about what they wish to achieve in life, or change their mind about what they want?</p>
<p>Group Identity: Social Support Networks (gangs, religious group, online community)</p>	<p>Q1: Does the subject have close ties to a non-familial community?</p> <p>Q2: Does the subject have a history of being ejected, excluded, or banned from participation in the group for being too extremist in their views?</p> <p>Q3: Does the subject have a history of trying to influence or lead a group to more fundamentalist or extremist positions?</p>
<p>Group Identity: Online Activity</p>	<p>Q1: Is the subject active on social media/online forums that focus on their ideological beliefs?</p> <p>Q2: Is the subject in online contact with other individuals known to possess extremist beliefs?</p> <p>Q3: Does the subject's internet history/discussion of internet history reveal any connection to extremist content?</p> <p>Q3: Does the subject communicate or demonstrate their belief in the value of perfect production, achievement, or service in every aspect of their life?</p>

Table 13 – Identity domain indicators and assessment questions¹⁷

4.2.8 Ideology

Like most TRAs, Corrado's instrument also includes an ideology domain. Jihadist TRAs, such as the RADAR-ITE 2.0, usually include the most ideological traits. These

¹⁷ Information retrieved from Corrado & Doering (2021)

instruments often work on a stage-model – ideological “conversion” being the first indicator of extremism (Moghaddam, 2005). This ideological “conversion” can occur in-person or online through social networking. As discussed previously, Corrado’s DSM-5 PID-based instrument is intended to apply to all forms of extremism. Hence, the indicators included in the ideology domain are kept broader. The ideology domain includes four indicators: ideological world view that condones violent political action, claims affiliation to an extremist group or cause, view that injustices can be addressed through violent means no matter how extreme, and view that the public is blind to or enabling injustice. Assessment questions for these indicators can be seen in Table 14.

<p>Ideological world view that condones violent political action</p>	<p>Q1: Does the subject follow or subscribe to an ideology where the ends justify the means, no matter how extreme?</p> <p>Q2: Does the subject follow or subscribe to an ideology that communicates in absolutist or extreme language?</p> <p>Q3: Does the subject follow or subscribe to an ideology that is apocalyptic or advocates extreme, violent change in society?</p>
<p>Claims affiliation to an extremist group or cause</p>	<p>Q1: Does the subject communicate opinions and/or objectives that mimic or align with extremist groups, causes or doctrine?</p> <p>Q2: Does the subject communicate they have membership, affiliation, or sympathy with an extremist group and/or cause?</p> <p>Q3: Does the subject communicate an admiration, support, or identification with an extremist leader figure (historical or current)?</p>
<p>View that injustices can be addressed through violent means no matter how extreme</p>	<p>Q1: Does the subject communicate opinions or ideas of gross injustice or oppression (historical or current) towards individuals and/or groups?</p> <p>Q2: Does the subject communicate that violent change is the only way to achieve justice?</p> <p>Q3: Does the subject communicate their role or purpose in life as an instrument of achieving justice or overcoming injustice?</p>
<p>View that the public is blind to or enabling injustice</p>	<p>Q1: Does the subject communicate a need that the public be educated or made aware of gross injustice or oppression?</p> <p>Q2: Does the subject communicate with conspiracy theories that exist to keep the public unaware and complacent about gross injustice or oppression?</p> <p>Q3: Does the subject communicate theories that potential supporters are intimidated or discouraged by people in power?</p>

Table 14 – Ideology domain indicators and assessment questions¹⁸

¹⁸ Information retrieved from Corrado & Doering (2021)

4.2.9 General Criminality

Last, Corrado chose to include a general criminality domain after recognizing a high prevalence of various levels of criminality among case studies reviewed as a basis for the DSM-5 PID-based terrorism risk assessment theoretical construct. Cases reviewed, revealed that criminality seemed to be a common factor in many individuals' pasts, a finding consistent across all secular and religious ideologies. Furthermore, Europe, especially, has seen an increase in radicalization within the correctional system (Hamm, 2013). The key theme underlying the general criminality domain is that engagement in deviant and criminal behavior over the life-course likely eases the transition for individuals to political violence. The general criminality domain includes five indicators: history of low-level criminality, history of violent criminality, history of intimate partner violence, history of gang/criminal organization involvement, and history of violence or threatening behaviour motivated by bias. Assessment questions for these indicators can be seen in Table 15.

<p>History of low-level criminality</p>	<p>Q1: Does the subject have a history (criminal record or other information) of involvement in street or low-level crime, such as theft, narcotics trafficking, fraud?</p> <p>Q2: Does the subject have a history of working within a street gang or group structure on street or low-level crime?</p> <p>Q3: Does the subject have a history of violence associated with low-level criminality?</p>
<p>History of violent criminality</p>	<p>Q1: Does the subject have a criminal record or other information demonstrating criminally violent behaviour (e.g., assault, weapons, robbery, sexual assault)?</p> <p>Q2: Does the subject have a criminal record or other information demonstrating threats of violence towards others?</p> <p>Q3: Does the subject have a criminal record or other information indicating they committed violence for profit (e.g., Kidnapping, extortion, murder)?</p>
<p>History of intimate partner violence</p>	<p>Q1: Does the subject have a criminal record or other information indicating they committed intimate partner violence?</p> <p>Q2: Does the subject have a criminal record or other information indicating they committed sexual violence within an intimate partner relationship?</p>

	Q3: Does the subject have a criminal record or other information indicating they committed threats or threatening behaviour (e.g., Stalking) within an intimate partner relationship?
History of gang/criminal organization involvement	Q1: Does the subject have a criminal record or other information indicating they were part of a criminal organization? Q2: Does the subject have a criminal record or other information indicating they held a position of leadership in a criminal organization? Q3: Does the subject have a criminal record or other information indicating skill and ability at organizing and executing criminal activities within a criminal organization?
History of violence or threatening behaviour motivated by bias	Q1: Does the subject have a criminal record or other information indicating they committed violence motivated by racism, xenophobia, homophobia, or sexism? Q2: Does the subject have a criminal record or other information indicating they have threatened violence motivated by racist, xenophobic, homophobic, or gender hatred? Q3: Does the subject have a criminal record or other information indicating they committed other criminal acts (e.g., vandalism) motivated by racist, xenophobic, homophobic, or gender hatred?

Table 15 – General criminality domain indicators and assessment questions¹⁹

4.3 Assessment Questions

As seen above, each indicator was scored based on three assessment questions. The questions were posed in a manner that allowed for third-party assessment. Having questions provided in this manner leads to advantages and disadvantages. The main advantage of using third-party assessment questions is that the instrument can be utilized in exploratory validation studies using openly available data sources such as news reports on terrorism cases. National security data is extremely difficult to access and as such many terrorism risk assessment instruments must be validated using openly available data first. As discussed in previous chapters, most researchers do not have the ability to interview radicalized individuals or incarcerated terrorists. As a result of the lack of access, self-report data is very hard to attain. Having limited access to self-report data is one of the main disadvantages in validating this instrument. The DSM-5 PID is based on self-report data (American

¹⁹ Information retrieved from Corrado & Doering (2021)

Psychiatric Association, 2013). To use the DSM-5 PID domains, Corrado had to translate the PID-5 questionnaire into third-party questions for the purpose of assessment (see Table 16).

Domain	Indicator	PID-5 Self-Report Statement	DSM-5 PID-based Terrorism Risk Assessment Instrument
Detachment	Suspiciousness	<i>I suspect that even my so-called “friends” betray me a lot.</i>	<i>Does the subject demonstrate and/or communicate a reluctance to confide in others?</i>
Antagonism	Manipulativeness	<i>Sweet-talking others helps me get what I want.</i>	<i>Does the subject build relationships solely for the purpose of promoting their self-interests?</i>
Psychoticism	Unusual Beliefs & Experiences	<i>I have some unusual abilities, like sometimes knowing exactly what someone is thinking.</i>	<i>Does the subject communicate special or unusual abilities?</i>

Table 16 – Example – Translation of DSM-5 PID self-report statements into instrument assessment questions²⁰

It is undeniable that simply translating a self-report questionnaire into third-party assessment questions bears some issues. Most importantly, information may be missed due to the detached nature of the assessment and, openly available secondary data may not be able to provide enough insight into answering questions based on self-reporting of emotions and beliefs. These challenges may, in part, explain the persistent reluctance to include personality-based indicators in TRAs. However, as mentioned, initial exploratory validation studies based on secondary data will often need to be conducted to assess the strength of a new instrument. This initial exploratory validation provides a basis for later validation on national security samples. Although not ideal,

²⁰ Information retrieved from the American Psychiatric Association (2013); Corrado & Doering (2021)

validating Corrado's instrument utilizing third-party questions based on the self-report statements of DSM-5 PID is a first step in exploring the importance of personality disorder and related traits in terrorism risk assessment.

Chapter 5.

Methodology

5.1 Interrater Reliability Study

5.1.1 Research Question

The research question answered by the first part of the validation study was:

RQ1: Does Corrado's proposed DSM-5 PID-based terrorism risk assessment instrument deliver consistent scoring results across raters?

5.1.2 Dataset

The dataset for the first part of this dissertation was created by examining major domestic terrorist attacks between 1999 and 2019 across a selection of Western liberal democracies and identifying the perpetrators involved. Since there is no openly available list of perpetrators, terrorist attacks and individuals were identified by using the google search engine. Key terms that led to the identification were the country of attack, terrorist attack, terrorism, lone actor, lone wolf, and terrorist. Countries included were the United States, Canada, the United Kingdom, France, Germany, Belgium, Spain, Norway, Sweden, New Zealand, and Australia. These countries were chosen because multiple terrorist attacks, as well as lone actor attacks had been committed in the prescribed timeframe. Information was collected using open-source data. When an individual of interest was identified, the name of the perpetrator was typed into the google search engine and all news outlet stories relating to the attack were examined for information on the individual. This included written and video files. Outlets like blogs or opinion pieces were excluded. It was ensured that only trusted news outlets were utilized. To ensure this, a media bias website was utilized (Ad Fontes Media). Ad Fontes Media ranks news sources according to political bias (All Rated Web/Print Sources, n.d.). Information collected from the open-source data was then converted into two-to-three-page case files. Each perpetrator was assigned a case file which included information such as the name, age of the time of the attack, ideology, ideology (if religious) – born or converted,

connection to known terrorist organizations/nature of the connection, family history, school history, socialization, employment history, criminal background, psychiatric assessment (diagnosed), personality features and features of attack. These case files were created to best simulate the practical application of Corrado's proposed instrument.

As seen in chapter 3 of this dissertation, a number of other researchers have utilized open-source data to validate their instruments (e.g., MLG, VERA-2R) (Lloyd, 2019). Not only was the aim to simulate a practical application but using a set of pre-created case files also ensured that both raters were provided with the same set of information. Hence, possible analysis errors due to differing knowledge were avoided. The original sample that was collected consisted of 164 individuals. Everyone on the list was subjected to an extensive open-source data background search with particular focus on personality-related information as outlined above. Once the perpetrator was identified, a google search relating to personality features, family and school background, mental health, and features of the attacks was conducted. After conducting a background search on all individuals, ten were eliminated due to lack of information. The final sample consisted of 154 individuals/case files.

5.1.3 Interrater Reliability

At the national security level, risk scoring of radicalized persons is conducted individually. However, relative consistency is key to successful risk assessment. Hence, a terrorism risk assessment instrument needs to be comprehensive, utilizable in practice, and ensure reliable results. To assess the desired consistency of Corrado's proposed instrument, this part of the study was conducted utilizing two independent raters. Both raters were doctorate students in the School of Criminology at Simon Fraser University. Both raters' main research focus revolved around terrorism and national security. Having this common research background ensured knowledge and expertise like that of analysts at the national security level.

Before providing the second rater with the case files and instrument questions, a training session was conducted. Due to the Covid-19 pandemic, the two raters had to meet online. The training consisted of discussing the instrument and questions and the first rater responded to any questions from the second rater and clarified concepts when

necessary. The second part of the training consisted of a simulated scoring. The first rater shared their screen on zoom and utilized a case file not included in the study sample to demonstrate how to score the case file using the proposed DSM-5 PID-based terrorism risk assessment instrument. Following this demonstration, the second rater was provided with another case file not included in the study sample and demonstrated their scoring of the instrument to the first rater. To simulate scoring, two separate case files were created by the first rater based on two terrorist attacks committed in the US in the year of 2020. After conclusion of this demonstration, the first rater provided the second rater with the 154 case files, the instrument scoring sheet, instructions on scoring, and the instrument (including assessment questions). Both raters had the instructions not to consult with one another during the scoring process and to not seek any external information on the cases.

5.1.4 Scoring

Individuals were scored across nine domains. Each domain consisted of three to five indicators. Those indicators were evaluated through a set of three assessment questions (see chapter 4). A scoring scale of zero to two was utilized to assess presence of indicators. This scoring technique is consistent with existing terrorism risk assessment instruments (e.g., MLG, ERG22+) (Lloyd, 2019). A score of zero was allocated in cases where the indicator was either negativized, or when information would be simply non-existent. A score of one was assigned when the indicator was partly present, while a score of two was noted in cases where the information suggested that the indicator was strongly reflected in the individual. This scoring method was utilized in every part of the validation.

5.1.5 Data Analysis

After completion of the scoring process, the two datasets provided by the raters were analyzed using ordinal response items and the linear weighed kappa method. The weighted kappa method is based on Cohen's (1968) kappa method. Cohen's kappa considers disagreement between raters and is thus, a standard method used in interrater analysis. However, Cohen's kappa does not measure the degree of disagreement. Therefore, a modified version of Cohen's kappa, weighted kappa, was used for this

analysis. The weighted kappa method is applied to a predefined table of scores and measures disagreement between the raters. The larger the disagreement between the raters on a specific case, the larger the weight assigned (Gwet, 2014). This method was chosen for multiple reasons. First, it highlighted consistency or lack thereof between the raters. Second, it revealed which domains and/or indicators were most consistent or inconsistent by measuring the degree of variance (Gwet, 2014).

5.1.6 Debriefing and Consensus Score

After completion of the scoring by both raters and the completed data analysis, both raters, again, met virtually through zoom to have a debriefing session. Given that this dissertation included four validation steps, it was important to agree on a consensus score for moving forward with the data. The two raters examined the weighted kappa scores together and discussed all cases and indicators in which scoring differed between them. Possible reasons for the discrepancy were discussed, and the two raters agreed on a consensus score for each differing value. Furthermore, the two raters discussed the process of scoring, which indicators were more difficult to score, and what recommendations to make regarding future research in the final dissertation. After completion of the session, the first rater created a new dataset which included all the consensus scores of the two raters. This dataset was utilized for the following validation steps described below (5.2, 5.3, 5.4).

5.2 Risk Assessment Strength Across Ideologies

5.2.1 Research Question

The research question answered by the second part of the validation study was:
RQ2: Is there a need for categorized terrorism risk assessment based on ideological affiliation?

5.2.2 Datasets

For this part of the validation process, the same 154 case files, as discussed in the interrater reliability study, were utilized to create individual datasets based on ideology. The database comprised of the consensus scores of both raters. After reviewing the case files, eight ideological categories were created by the author (first rater). When assigning individuals to the categories, it was discovered that most case files fell under Islamist extremism or right-wing extremism. Other categories that were identified are other political ideology, left-wing extremism, Christian fundamentalism/anti-abortion, anti-Semitism, xenophobia, and anti-religion (see Table 17).

Ideology	Case Files
Islamist Extremism	99
Right-Wing Extremism	31
Other Political Extremism	13
Left-Wing Extremism	4
Christian Fundamentalism/Anti-Abortion	4
Anti-Semitism	1
Xenophobia	1
Anti-Religion	1

Table 17 – Ideology-based case file categorization

The ideological categories were created based on views expressed by the individual perpetrators. Any individual expressing opinions in support of fundamental interpretations of Islam or even Jihad (external/physical self-defense)²¹, were categorized as Islamist extremists. Anyone expressing views glorifying the Third Reich, classified as White supremacists or were outright racist towards non-Caucasians or in general immigrants, were defined as right-wing extremists. Those that subscribed to ideologies based on broad anti-government conspiracy theories were placed in the ‘other political extremism’ category. This category excluded anyone that made race or religion a priority. Individuals in support of creating anarchist or communist political structures through the use of violence, were assigned to the left-wing extremism group.

²¹ Internal Jihad: The struggle within oneself to live a life free of sin in accordance with the principles outlined in the Quran, Sunna, and Sharia Law (Burki, 2011).

External Jihad/by word: Using pen or mouth to defend against those opposing Islam (Burki, 2011).

External Jihad/physical self-defense: Using violence in self-defense to fight those trying to occupy Islamic lands (Burki, 2011).

Those believing in fundamental forms of Christianity, often including anti-abortionists, were placed in a category together. One individual primarily solely expressed anti-Semitic and anti-Israel views. This individual was not placed in the Islamist extremism category since there was a lack of evidence of religion playing a role in his convictions. Another individual that could not be assigned to any of the abovementioned groups, was an African American male who expressed extreme xenophobic views. Last, one perpetrator was categorized as opposing the concept of religion as a whole, not discriminating between any of the major belief systems.

Considering the categorical differences in size, this part of the validation only assessed Corrado's proposed instrument across the two main ideologies – Islamist extremism and right-wing extremism. Although lacking validation across other ideologies, this step of the validation was still considered relevant since the global trend towards risk assessment has focused on Jihadism/Islamist extremism and more recently, right-wing extremism. Furthermore, focusing specifically on Islamist extremism and right-wing extremism provided guidance on whether countries like Germany are taking the right approach by developing ideology specific terrorism risk assessment instruments. As can be seen from the categories outlined in Table 17, other forms of extremism have become increasingly rare. After deciding to focus on two ideological streams, two datasets were created. One dataset contained information about those perpetrators categorized as Islamist extremists ($n = 99$), the other included anyone identified as right-wing extremist ($n = 31$). The scores for both datasets were derived from the consensus score database, previously discussed.

5.2.3 Data Analysis

After creating two ideology-specific datasets based on the consensus scores, independent samples t-tests were run for each indicator of the proposed DSM-5 PID-based terrorism risk assessment instrument to compare means of both groups. Effect sizes were calculated using the Cohen's d measure. All statistical tests were conducted using SPSS Statistics. Furthermore, a Bonferroni correction was applied to the α value. The Bonferroni correction was applied to decrease the risk of a family-wise error (Andrade, 2019). By conducting independent samples t-tests, this study was able to

assert whether certain indicators were more relevant to one stream of ideology than another, ultimately answering the research question of whether terrorism risk assessment instruments can be applied to heterogeneous groups (Greasley, 2008).

5.3 Personality Profile Differences between Group-Based and Lone Actor Terrorists

5.3.1 Research Question

The research question answered by the third part of the validation study was:
RQ3: Do risk profiles of group-based terrorists differ from those of lone actor terrorists?

5.3.2 Datasets

For this part of the validation process, the same 154 case files, as discussed in the interrater reliability study, were utilized to create individual datasets based on group affiliation. The database comprised of the consensus scores of both raters. Utilizing the case file information on affiliation to known terrorist groups, the perpetrators were categorized into group-based and lone actor terrorists by the author (first rater). An individual was classified as lone actor if they had no physical or virtual involvement with a terrorist group (Spaaij, 2010). Although some classified as lone actors were inspired by a cause through online propaganda, the interaction was one-sided, meaning the individual had not been in contact with any recruiters. Although there is no clear definition on what constitutes a lone actor, for this study it was decided to use a very restrictive/conservative interpretation to create a clear boundary between the two groups. Since it was important to create a clear framework, the lone actor definition utilized was provided by Spaaij (2010). Spaaij (2010) asserts that:

Lone actor terrorism involves terrorist attacks carried out by persons who (a) operate individually, (b) do not belong to an organized terrorist group or network, and (c) whose *modi operandi* are conceived and directed by the individual without any direct outside command or hierarchy (p.856).

Based on this categorization, two datasets were created. Out of the 154 case files, 79 were classified as lone actors and 73 were considered group-based. Two cases were included based on missing data.

5.3.3 Data Analysis

After creating the two datasets based on the consensus score, independent samples t-tests were run for each indicator of the DSM-5 PID-based terrorism risk assessment instrument to compare means of both groups. Effect sizes were calculated using the Cohen's *d* measure. All statistical tests were conducted using SPSS Statistics. Furthermore, a Bonferroni correction was applied to the *alpha* value. The Bonferroni correction was applied to decrease the risk of a family-wise error (Andrade, 2019). By conducting independent samples t-tests, this study was able to assert whether certain indicators were more relevant to lone actors than to group-based terrorists (Greasley, 2008).

5.4 Personality Profile Differences between Mass Shooters and Lone Actor Terrorists

5.4.1 Research Question

The research question answered by the fourth part of the validation study was:
RQ4: Do risk profiles of mass shooters differ from those of lone actor terrorists?

5.4.2 Datasets

For this part of the validation process, the above-discussed lone actor dataset was subdivided by country of offense. All lone actors having committed their offense in the United States were placed in one dataset. This dataset was comprised of the consensus scores of both raters. The second dataset utilized in this part of the validation process included American mass shooters. To create a list of 30 mass shooters, an open-source database provided by Mother Jones was used. Mother Jones is an American news magazine that focuses on investigative journalism in the areas of

politics, economics, human rights, the environment etc. Although not an academic resource, the Mother Jones database was simply used as an initial identification tool for mass shooting perpetrators. Perpetrators and mass shootings listed in the database underwent an extensive online search to verify accuracy of information provided by Mother Jones.

The Mother Jones database included 118 names of American mass shooters from 1982 to 2022 (Follman, Aronsen, & Pan, 2022). The Mother Jones database subdivided the 118 cases by target (e.g., public place, school, work) (Follman, Aronsen, & Pan, 2022). When deciding which individuals to choose for this study, three factors were considered. First, it was ensured that all target types were represented as equal as possible. Out of the 30 individuals chosen for this study, 12 were considered 'public place' shooters, eight were considered 'workplace' shooters, and 10 were considered 'school shooters. Although not completely equal, the second consideration looked at breadth of information available. Oftentimes information on workplace shooters was not as available as 'public place' and 'school shooters. Third, this study attempted to examine some of the most recent mass shootings (Follman, Aronsen, & Pan, 2022). After deciding on 30 individuals, case files were created like in previous parts of the study. One rater scored the 30 individuals across all indicators of the proposed DSM-5 PID-based terrorism risk assessment instrument. The domain 'ideology' was partially excluded in this part of the study. The only two indicators scored were "claims affiliation to an extremist group or cause" and "view that injustices can be addressed through violent means no matter how extreme". The first indicator seemed relevant as some mass shooters had proclaimed sympathy with extremist causes in the past. The second indicator refers to a broader acceptance of violence as a means of addressing injustice. The scoring process was conducted as outlined in the description of the interrater reliability study.

5.4.3 Data Analysis

After creating two datasets, independent samples t-tests were run 39 indicators of the proposed DSM-5 PID-based terrorism risk assessment instrument to compare means of both groups. Effect sizes were calculated using the Cohen's *d* measure.

Furthermore, a Bonferroni correction was applied to the *alpha* value. The Bonferroni correction was applied to decrease the risk of a family-wise error (Andrade, 2019). By conducting independent samples t-tests, this study was able to assert whether certain indicators were more relevant to lone actors than to mass shooters (Greasley, 2008).

5.5 Restructuring of Domains and Indicators

The last step in assessing the validity of the proposed DSM-5 PID-based terrorism risk assessment instrument was to assess the inter-item/indicator correlations to see whether the proposed domains of the instrument made sense theoretically but also statistically. The SPSS Statistics programme was used to conduct all tests. First, a Pearson correlation matrix was created using all the indicators of the instrument to examine correlations between them. The correlation matrix indicated a lack of inter-indicator correlation²². Consequently, an exploratory factor analysis was run on all indicators. The exploratory factor analysis was conducted using an Eigenvalue of greater than 1 and a varimax rotation method was employed. The varimax method was chosen to ensure that the output factors were as independent of one another as possible. The extraction method used in the exploratory factor analysis was a principal component analysis. The exploratory factor analysis resulted in the creation of 15 individual factors.²³ Since not all of the created factors were considered theoretically sound, individual forced/confirmatory factor analysis were conducted based on the findings of the exploratory initial factor analysis. These individual forced factor analyses again used an Eigenvalue of greater than 1 and a varimax rotation method. The extraction method, too, again was a principal component analysis. This resulted in the creation of 13 new statistically and theoretically sound domains, an additional domain consisting of unassigned indicators, and suggestions for future research. Although some indicators could not be assigned to the newly created domains, they were kept as part of the instrument in a separate “additional indicator” domain. This inclusion is in line with other terrorism risk assessment instruments such as the VERA-2R. To assess the statistical

²² The Pearson correlation matrix output included 41 indicators and as such was deemed too large to attach in the Appendix of this dissertation

²³ Results from the exploratory factor analysis, as well as Eigenvalues of the created factors are displayed in Appendix (factors highlighted in Tables 1, 2, 3, Eigenvalues displayed in Table 4)

strength of the new domains the percentage of variance was calculated. Any score over 50 percent was considered statically strong. The theoretical soundness of the domains was assessed by examining other terrorism risk assessment instruments and referring to relevant academic literature. Eleven of the domains received new descriptions based on overarching themes of the grouped indicators. The restructured instrument will be discussed in chapter 9 of this dissertation.

Chapter 6.

Results

6.1 Interrater Reliability

As discussed in the chapter five of this dissertation, the first step in validating the proposed DSM-5 PID-based terrorism risk assessment instrument was to assess its interrater reliability across indicators. The interrater reliability was measured using the linear weighted kappa method. The weighted kappa score was represented by the k value. For the weighted kappa scores, the following measurement was utilized: k values below 0.2 indicated poor agreement, k values between 0.21 and 0.4 indicated fair agreement, k values between 0.41 and 0.6 indicated moderate agreement, k values between 0.61 and 0.8 indicated good agreement, and k values between 0.81 and 1 indicated very good agreement (Gwet, 2014). Statistical significance was assessed using the p value. The statistical significance was assessed using an α value of $p < .05^*$. Any p value smaller than $.05^*$ was considered statistically significant for this study. Furthermore, a p value below $.01^{**}$ indicated even more statistical significance. Last $p < .001^{***}$ indicated the score to be highly statistically significant. Results for the k and p values for the interrater reliability study are presented by domain.

6.1.1 Detachment Domain

As discussed in previous chapters of this dissertation, the detachment, negative affectivity, antagonism, disinhibition, and psychoticism domains all derive from the DSM-5 PID. Interrater reliability across indicators in the detachment domain of Corrado's proposed terrorism risk assessment instrument are presented in Table 18.

Domain	Indicator	Weighted Linear Kappa (<i>k</i> value)	Significance (<i>p</i> value)
Detachment	Withdrawal	.715	<.001***
	Depressivity	.647	<.001***
	Anhedonia	.665	<.001***
	Intimacy avoidance	.431	<.001***
	Suspiciousness	.373	<.001***

Table 18 – Detachment domain - Indicator *k* values and *p* values

As seen in Table 18, none of the indicators in the detachment domain of Corrado’s proposed terrorism risk assessment instrument displayed poor agreement scores. The lowest *k* value, .373, was shown by the indicator *suspiciousness*. Although *suspiciousness* only portrayed fair agreement, *k* = .373 is at the higher end of the fair agreement spectrum. *Intimacy avoidance* displayed moderate agreement with a *k* value of .431. The remaining three indicators, *withdrawal*, *depressivity*, and *anhedonia* all indicated good agreement. Overall, the detachment domain suggested adequate agreement across both raters. All indicators in this domain were highly statistically significant.

6.1.2 Negative Affectivity Domain

Linear weighted kappa scores and statistical significance for indicators in the negative affectivity domain are presented in Table 19.

Domain	Indicator	Weighted Linear Kappa (<i>k</i> value)	Significance (<i>p</i> value)
Negative Affectivity	Emotional dysregulation	.385	<.001***
	Anxiety	.655	<.001***
	Hostility	.502	<.001***
	Perseveration	.323	<.001***
	Restricted affect	.765	<.001***

Table 19 – Negative affectivity domain - Indicator *k* values and *p* values

Within the negative affectivity domain, two indicators displayed fair agreement scores. *Emotional dysregulation* had a *k* value of .385 and *perseveration* portrayed a *k*

value of .323. One indicator, *hostility* indicated moderate agreement at $k = .502$. The remaining two indicators *anxiety* and *restricted affect* both presented good agreement scores at $k = .655$ and $k = .765$. Again, all scores were considered highly statistically significant.

6.1.3 Antagonism Domain

The antagonism domains' indicator k and p values are outlined in Table 20.

Domain	Indicator	Weighted Linear Kappa (k value)	Significance (p value)
Antagonism	Manipulative	.476	<.001***
	Deceitful	.243	<.001***
	Grandiose	.306	<.001***
	Callousness	.166	<.001***
	Attention seeking	.430	<.001***

Table 20 – Antagonism domain - Indicator k values and p values

The antagonism domain was the first to exhibit a poor agreement score. *Callousness* indicated poor agreement between the two raters at $k = .166$. The remaining indicators fell into the fair or moderate categories of the linear weighted kappa spectrum. *Deceitful* and *grandiose* both displayed fair k values at .243 and .306 each. *Manipulative* and *attention seeking* presented moderate agreement by displaying k values of .476 and .430. Again, all indicators in the antagonism domain were highly statistically significant. However, overall, the antagonism domain displayed lower k values than previous domains discussed.

6.1.4 Disinhibition Domain

Agreement of both raters across indicators in the disinhibition domain, as well as statistical significance for such scores is presented in Table 21.

Domain	Indicator	Weighted Linear Kappa (<i>k</i> value)	Significance (<i>p</i> value)
Disinhibition	Irresponsible	.320	<.001***
	Impulsivity	.637	<.001***
	Distractibility	.176	<.001***
	Risk taking	.211	<.001***
	Rigid perfectionism	.179	<.001***

Table 21 – Disinhibition domain - Indicator *k* values and *p* values

Whereas the antagonism domain only displayed one poor agreement score, the disinhibition domain consisted of two indicators with low *k* values. Both *distractibility* (*k* = .176) and *rigid perfectionism* (*k* = .179) presented poor agreement between the raters. Another indicator that portrayed a low weighted kappa score was *risk taking*. Although a *k* value of .211 did not indicate poor agreement, it was considered on the low end of the fair agreement spectrum. *Irresponsible*, too, showed fair agreement at *k* = .320. The only indicator displaying a good agreement score in this domain was *impulsivity* at *k* = .637. Overall, the disinhibition domain indicated less agreement between the raters than the previously discussed detachment, negative affectivity, and antagonism domains.

6.1.5 Psychoticism Domain

Table 22 displays the linear weighted kappa values and statistical significance for indicators in the psychoticism domain.

Domain	Indicator	Weighted Linear Kappa (<i>k</i> value)	Significance (<i>p</i> value)
Psychoticism	Unusual beliefs & experiences	.487	<.001***
	Eccentricity	.481	<.001***
	Perceptual dysregulation	.467	<.001***

Table 22 – Psychoticism domain - Indicator *k* values and *p* values

As seen in Table 22, the psychoticism domain consisted of three indicators: *unusual beliefs & experiences*, *eccentricity*, and *perceptual dysregulation*. All three indicators displayed moderate agreement between both raters. *Unusual beliefs & experiences* portrayed a *k* value of .487, *eccentricity* presented a *k* value of .481, and

perceptual dysregulation showed a k value of .467. All values were statistically highly significant.

6.1.6 Cognitive Domain

As discussed in previous chapters, the cognitive domain was one of the domains based on the CAPP instrument. Agreement scores and statistical significance for indicators in the cognitive domain are presented in Table 23.

Domain	Indicator	Weighted Linear Kappa (k value)	Significance (p value)
Cognitive	Intolerance	.178	<.001***
	Inflexible	.147	<.001***
	Disillusionment	.428	<.001***
	Planfulness (or lack of)	.004	.461

Table 23 – Cognitive domain - Indicator k values and p values

The cognitive domain presented the weakest agreement scores, compared to previously discussed domains. As seen in Table 23, only one indicator reached the moderate agreement threshold, *disillusionment* at $k = .428$. The three other indicators all displayed poor agreement values such as *intolerance* at $k = .178$ and *inflexible* at $k = .147$. The lowest agreement in this domain was exhibited by *planfulness (or lack of)* with a k value of only .004. *Planfulness (or lack of)* was also the only indicator in this domain that did not present with statistical significance ($p = .461$). All other indicators displayed high statistical significance.

6.1.7 Identity Domain

The identity domain was another domain derived from the CAPP instrument. Its indicators addressed both self-identity and group-identity. Linear weighted kappa values and statistical significance of the indicators in the identity domain are presented in Table 24.

Domain	Indicator	Weighted Linear Kappa (<i>k</i> value)	Significance (<i>p</i> value)
Identity	Self-identity: Sense of invulnerability	.563	<.001***
	Self-identity: Self-justifying	.127	<.001***
	Self-identity: Unstable self-concept	.519	<.001***
	Group identity: Social support networks (gangs, religious group, online community)	.284	<.001***
	Group identity: Online activity	.569	<.001***

Table 24 – Identity domain - Indicator *k* values and *p* values

Whereas the cognitive domain included three out of four indicators indicating poor reliability, agreement across the identity domain seemed more promising. Only one out of five indicators displayed poor agreement, *self-identity: self-justifying* at *k* = .127. *Group identity: social support networks (gangs, religious group, online community)* indicated fair agreement with a *k* value of .284. The remaining three indicators all suggested good agreement between the raters. *Self-identity: sense of invulnerability* showed a *k* value of .563, *self-identity: unstable self-concept* displayed a *k* value of .519, and *group identity: online activity*, the strongest of all indicators in this domain, exhibited a *k* value of .569. Again, like in the detachment, negative affectivity, antagonism, disinhibition, and psychoticism domain, all indicators were statistically highly significant.

6.1.8 Ideology Domain

The ideology domain was added to Corrado’s proposed DSM-5 PID-based terrorism risk assessment instrument due to its prevalence in other TRAs, as well as its relevance to terrorism as a political crime. *K* and *p* values for the indicators in the ideology domain are outlined in Table 25.

Domain	Indicator	Weighted Linear Kappa (<i>k</i> value)	Significance (<i>p</i> value)
Ideology	Ideological world view that condones violent political action	.721	<.001***
	Claims affiliation to an extremist group or cause	.766	<.001***
	View that injustices can be addressed through violent means no matter how extreme	.841	<.001***
	View that the public is blind to or enabling injustice	.325	<.001***

Table 25 – Ideology domain - Indicator *k* values and *p* values

Compared to previous domains, the ideology domain displayed the strongest linear weighted kappa scores across the instrument. As seen in Table 25, only one indicator *view that the public is blind to or enabling injustice* suggested fair agreement. Two indicators in the ideology domain presented with good agreement. *Ideological world view that condones violent political action*, and *claims affiliation to an extremist group or cause* displayed *k* values over $k = 0.7$. *Ideological world view that condones violent political action* showed a *k* value of .721, and *claims affiliation to an extremist group or cause* portrayed a *k* value of .766. *View that injustices can be addressed through violent means no matter how extreme* was the first indicator in the instrument to exhibit very good agreement between raters with a *k* value of .841. In this domain, too, all indicators were considered statistically highly significant.

6.1.9 General Criminality Domain

The last domain to be discussed in this section of the results chapter is the general criminality domain. As explained previously, the addition of this domain was based on other TRAs, reviewing case studies of known terrorists, and the emerging work of European scholarship on prison radicalization (Hamm, 2013). Linear weighted kappa values and statistical significance of indicators in the general criminality domain are presented in Table 26.

Domain	Indicator	Weighted Linear Kappa (<i>k</i> value)	Significance (<i>p</i> value)
General Criminality	History of low-level criminality	.658	<.001***
	History of violent criminality	.690	<.001***
	History of intimate partner violence	.652	<.001***
	History of gang/criminal organization involvement	.448	<.001***
	History of violence or threatening behaviour motivated by bias	.495	<.001***

Table 26 – General criminality domain - Indicator *k* values and *p* values

Like the ideology domain, the general criminality domain presented some of the strongest agreement scores. The lowest *k* values were situated in the 0.4 range with *history of gang/criminal organization involvement* displaying a *k* value of .448 and *history of violence or threatening behaviour motivated by bias* showing a *k* value of .495. Both indicators suggested moderate agreement. The remaining three indicators all displayed *k* values over 0.6. *History of low-level criminality* had a *k* value of .658, *history of violent criminality* presented an agreement score of *k* = .690, and *history of intimate partner violence* displayed a weighted kappa value of *k* = .652. The ideology domain's indicators, like most others discussed, all presented high statistical significance.

6.2 Risk Assessment Strength Across Ideologies

As discussed in the methodology chapter of this dissertation, the proposed DSM-5 PID-based terrorism risk assessment instrument was utilized to assess differences and similarities in Islamist and right-wing extremists. This step was undertaken to understand whether there is an inherent need for ideologically categorized risk assessment, and whether there are some indicators more indicative of violence in one ideological stream rather than the other. This part of the results chapter outlines the findings of the conducted independent samples t-tests. However, before presenting inferential findings, descriptive data collected on these two sample groups is presented.

6.2.1 Descriptive Data (Islamist and Right-Wing Extremism)

Along with collecting information directly relating to the indicators of Corrado’s proposed DSM-5 PID-based terrorism risk assessment instrument, terrorist case files for this dissertation also included descriptive information. The descriptive information collected differed from one validation step to another but was broadly based on indicators from other TRAs, as well as academic literature on terrorist risk factors. The descriptive data collected for this part of the study included age at time of attack, connection to an extremist/terrorist organization, employment at time of attack, and education level at time of attack. Independent t-tests were run to assess whether the two groups differed significantly on the descriptive items (p and t values are discussed below). An alpha value of $<.05$ was utilized to assess statistical significance. Descriptive features of Islamist extremists and right-wing extremists are displayed in Tables 27, 28, 29, and 30.

Group	Number of cases	Mean age at time of attack	Standard deviation
Entire terrorist sample	151	30.57	11.93
Islamist extremism	99	26.51	16.22
Right-wing extremism	28	37.11	7.25

Table 27 – Mean age at time of attack (Islamist extremism and right-wing extremism)

As seen in Table 27, the mean age at time of attack for the entire sample ($N = 154$) was $\bar{x} = 30.57$. The standard deviation for the entire terrorist sample was $\sigma = 11.93$, indicating that there was quite some discrepancy between ages of perpetrators. This discrepancy grew when examining solely those individuals classified as Islamist extremists ($\sigma = 16.22$). Although statistically significantly ($t = 3.366$; $p = .002^*$) younger than right-wing extremists at time of attack ($\bar{x} = 26.51$), Islamist extremists’ age at time of attack seemed more dispersed than that of right-wing extremists. Unfortunately, for three right-wing extremists, age could not be determined (multiple year attack sprees). However, from the remaining 28 individuals classified as right-wing extremists, it was inferred that this group was generally older at the time of their attack ($\bar{x} = 37.11$). The standard deviation of $\sigma = 7.25$ indicated that discrepancy in ages for right-wing extremist was smaller compared to Islamist extremists. This finding can potentially influence the

scoring outcomes of these two groups. For instance, considering the mean age of right-wing extremists, the indicators in Corrado’s proposed instrument relating to identity, specifically unstable self-identity, may not be as relevant to right-wing extremists. This prediction may be further undermined by the fact that Corrado bases his *self-identity: unstable self-identity* on developmental criminology and the age crime curve (Corrado & Doering, 2021; Moffitt, 2018).

Group	Number of cases	Connection to extremist/ terrorist organization	No connection to extremist/terrorist organization
Entire terrorist sample	152	73 (48%)	79 (52%)
Islamist extremism	99	57 (57.6%)	42 (42.4%)
Right-wing extremism	30	11 (36.6%)	19 (63.3%)

Table 28 – Connection to terrorist organization (Islamist extremism and right-wing extremism)

Table 28 displays the percentage of connected terrorists across the entire sample (N = 152), Islamist extremists, and the right-wing extremist terrorists. Two cases out of the larger sample (N = 152) had to be excluded due to insufficient information available for determining whether a connection existed. These cases fell into the right-wing extremist category. As seen from the remaining 152 cases, the sample was almost evenly split into those terrorists with connections to extremist/ terrorist groups (48 percent), and those considered lone actors (52 percent). When examining the two individual groups, the discrepancy grew. Islamist extremists in this sample (n = 99) tended to be more connected to extremist/terrorist organizations with 57.6 percent of the sample having some form of connection. Only 42.4 percent of the Islamist extremism sample were considered lone actors. The opposite trend was witnessed when looking at right-wing extremism. In this sample of right-wing extremists, only 36.6 percent were connected to an extremist/terrorist organization and 63.3 percent and were considered lone actors. When conducting an independent samples t-test, it was found that Islamist extremists were significantly more connected to terrorist organizations than right-wing extremists ($t = -2.026; p = .045^*$).

Group	Number of cases	Employed at time of attack	Unemployed at time of attack
Entire terrorist sample	131	73 (55.7%)	58 (44.3%)
Islamist extremism	80	50 (62.5%)	30 (37.5%)
Right-wing extremism	30	9 (30%)	21 (70%)

Table 29 – Employment at time of attack (Islamist extremism and right-wing extremism)

Employment information was also gathered for the two groups, as well as the entire sample. As seen in Table 29, 23 cases had to be excluded due to a lack of information available on employment status. However, it seemed important to look at the employment history of perpetrators as it was a commonly referred to risk factor in other TRAs, and often is cited as an important protective factor in criminological theories (Sampson & Laub, 2016). Like with the previous variable ‘connection to an extremist/terrorist organization’, ‘employment at time of attack’ also seemed to be divided quite evenly throughout the entirety of the sample (N = 131). Out of the 131 individuals examined, 55.7 percent were determined to have worked during the time of their attack, whereas 44.3 percent were unemployed. In the group of 80 Islamist extremists, 62.5 percent were employed at the time of their attack, 37.5 percent were unemployed. When examining the right-wing extremists, it can be seen that 70 percent of the right-wing extremist sample were unemployed at the time of their attack. Independent t-tests conducted on this descriptive item confirmed that right-wing extremists were significantly more likely to be unemployed ($t = -3.152$; $p = .002^*$). Not only, were significant mean differences found between the two groups regarding employment at the time of their attacks, however the unemployment rates in general in the samples seemed very high. This finding was especially concerning when comparing it to the American national percentage of civilian unemployment which in March 2022 was estimated to be 3.6 percent (U.S. Bureau of Labor Statistics, n.d.).

Group	Number of cases	Attending secondary education	No completion/secondary education	Secondary education	Post-secondary education
Entire terrorist sample	120	9 (7.5%)	20 (16.7%)	65 (54.2%)	26 (21.7%)
Islamist extremism	80	8 (10.3%)	9 (11.5%)	46 (59%)	15 (19.2%)
Right-wing extremism	25	1 (4%)	8 (32%)	11 (44%)	5 (20%)

Table 30 – Education level at time of attack (Islamist extremism and right-wing extremism)

Education level at time of attack was another factor that seemed to be relevant. This determination was not only based on other TRA indicators, but education/academic achievement has also been identified as an important risk-or protective factor in criminological theories (Dubow & Luster, 1990; Gassman-Pines & Yoshikawa, 2006;

January et al., 2017). After reviewing the information on education levels of all individuals included in the sample (N = 154), it was determined that four classifications were represented in the sample: those attending secondary school at the time of attack, those who had not completed secondary school, those who had achieved an equivalent of a secondary school diploma, and those who had completed post-secondary education. As previously discussed, this information was only available for 120 perpetrators out of the sample of N = 154. As seen in Table 30, the largest percentage in the entire terrorist sample was found for those who had graduated secondary school (54.2 percent). The second largest percentage (21.7 percent) was represented by those who had completed post-secondary education. Those currently attending secondary school represented 7.5 percent of the sample, and 16.7 percent did not complete secondary school.

Independent t-tests were conducted on all education variables discussed above to assess group differences. Although there was a substantial mean difference in 'no completion/secondary education' (11.5 percent Islamist extremists and 32 percent right-wing extremists), results indicated that there was no statistical significance between the two groups when examining no completion rates ($t = 2.007$; $p = .053$). Furthermore, no statistically significant mean differences could be found between groups relating to those attending secondary school at the time of their attack ($t = -1.183$; $p = .241$) (10.3 percent Islamist extremists and 4 percent right wing extremists). Like with the variable 'attending secondary education', 'secondary school education' also did not display statistically significant mean differences ($t = -1.309$; $p = .194$) (59 percent Islamist extremists and 44 percent right wing extremists). Last there were no statistically significant mean differences found between the groups relating to post-secondary education ($t = .171$; $p = .864$) (19.2 percent Islamist extremists and 20 percent right wing extremists). Although most education-related descriptive variables did not display significant mean differences, it is worth noting that there seemed to be a larger discrepancy between the groups at the lower levels of the education (no completion/secondary school), however that this gap closed steadily toward the higher education variables ('secondary school education' and 'post-secondary school education').

6.2.2 Independent Samples T-Tests (Islamist and Right-Wing Extremism)

As discussed in the methodology chapter of this dissertation, independent samples t-tests were conducted on all indicators of Corrado's proposed instrument to examine whether terrorism risk factors differed across ideologies. Although eight ideological streams were identified in the case files, only two groups, Islamists extremists and right-wing extremists were considered for this part of the validation study. Reasoning for this decision has been provided in the methodology chapter. Not only was this step in the validation process of Corrado's proposed instrument aimed at identifying similarities and differences in terrorism risk factors for both groups, but the goal was also to determine whether the instrument could be utilized on all ideological streams or should be modified into several individual instruments to address differing risk profiles of terrorists according to their ideological affiliation. In essence, this part of the validation study aimed to answer whether an unitary instrument is suitable to assess terrorist risk across all ideologies (e.g., VERA2R) or whether TRAs need to be specific to ideology (e.g., RADAR-ITE 2.0) (Lloyd, 2019; Sadowski et al., 2021).

Like the previous results presented on the interrater reliability of the instrument, this section, too, addressed independent samples t-test results (p values), as well as effect sizes (Cohen's d) of these results by domain. To minimize the risk of family-wise error, a Bonferroni correction was applied to the α value for all independent samples t-tests conducted as part of the dissertation (Andrade, 2019). The original α value of .05 was reduced to .001. All results equal to or below the Bonferroni-corrected α value of .001 were considered statistically significant. Cohen's d was utilized to measure effect sizes of the independent samples t-test results. Cohen's d values can be negative or positive depending on the direction of the decrease or increase in means of the sampled groups. Cohen's d values were assessed in the following way: (negative or positive): (+/-) 0 to 0.19 equals a trivial effect, (+/-) 0.2 to 0.5 equals a small effect, (+/-) 0.5 to 0.8 equals a medium effect, and (+/-) 0.8 or higher equals a large effect.

6.2.2.1 Detachment Domain

As discussed above independent samples t-tests using two samples (Islamist and right-wing extremists) were conducted on each indicator of the proposed DSM-5 PID-based terrorism risk assessment instrument. *P* values and effect sizes for the detachment domain indicators are presented in Table 31.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Detachment	Withdrawal	.70	1.03	.019	-.490
	Depressivity	.52	1.10	<.001*	-.998
	Anhedonia	.63	.84	.085	-.357
	Intimacy avoidance	.28	.35	.557	-.121
	Suspiciousness	.08	.58	<.001*	-1.465

Table 31 – Detachment domain – Indicators *p* values and effect sizes (Islamist extremism and right-wing extremism)

As seen in Table 31, two indicators in the detachment domain, *depressivity* and *suspiciousness* displayed statistically significant mean differences between Islamist extremists and right-wing extremists. *Depressivity* was highly statistically significant and indicated an effect size of $d = -.998$. As discussed above $d = -.998$ is considered a large effect. When examining the groups' means it became apparent that right-wing extremists ($\bar{x} = 1.10$) scored higher on the indicator *depressivity* than their Islamist extremist counterparts ($\bar{x} = .52$). Right-wing extremists also displayed a higher mean score on the indicator *suspiciousness* ($\bar{x} = .58$) than Islamist extremists ($\bar{x} = .08$). *Suspiciousness*, like *depressivity*, carried a large effect size of $d = -1.465$. All other remaining indicators in the detachment domain did not present statistically significant mean differences between the two groups.

6.2.2.2 Negative Affectivity Domain

Results of the independent samples t-tests conducted on the indicators in the negative affectivity domain are presented in Table 32.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (p value)	Effect Size (Cohen's d)
Negative Affectivity	Emotional dysregulation	.40	.77	.011	-.668
	Anxiety	.01	.32	.019	-.890
	Hostility	.53	1.00	<.001*	-1.040
	Perseveration	.02	.06	.315	-.208
	Restricted Affect	.05	.19	.066	-.523

Table 32 – Negative affectivity domain – Indicators p values and effect sizes (Islamist extremism and right-wing extremism)

Unlike in the previously discussed domain, detachment, only one indicator in the negative affectivity domain presented statistically significant mean differences between Islamist extremists and right-wing extremists. *Hostility*, displayed a mean score of $\bar{x} = 1.00$ in right-wing extremists, and $\bar{x} = .53$ in Islamist extremists. This result presented a large effect size of $d = -1.040$. All other indicators in this domain did not show statistically significant mean differences between the sample groups.

6.2.2.3 Antagonism Domain

Table 33 represents p values and effect sizes of independent samples t-tests conducted on indicators in the antagonism domain.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (p value)	Effect Size (Cohen's d)
Antagonism	Manipulative	.11	.23	.337	-.249
	Deceitful	.27	.35	.543	-.126
	Grandiose	.35	1.97	<.001*	-2.766
	Callousness	.18	.29	.316	-.207
	Attention seeking	.17	.45	.090	-.468

Table 33 – Antagonism domain – Indicators p values and effect sizes (Islamist extremism and right-wing extremism)

As seen in Table 33, only one indicator *grandiose* displayed a statistically significant mean difference between the two sample groups. The indicator *grandiose* seemed very significant to right-wing extremist risk profiles with a mean of $\bar{x} = 1.97$. The indicator appeared less important to Islamist extremists ($\bar{x} = .35$). Considering the

difference in means between the groups, it came as no surprise that the effect size presented as very large at $d = -2.766$.

6.2.2.4 Disinhibition Domain

Presented in Table 34 are the results of the independent samples t-tests conducted on indicators of the disinhibition domain. None of the indicators in this domain displayed statistically significant mean differences between Islamist and right-wing extremists. As such, no further elaboration appeared necessary.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (p value)	Effect Size (Cohen's d)
Disinhibition	Irresponsible	.26	.39	.202	-.264
	Impulsivity	.33	.42	.465	-.151
	Distractibility	.03	.06	.527	-.131
	Risk taking	.85	.97	.354	-.191
	Rigid perfectionism	.06	.10	.572	-.116

Table 34 – Disinhibition domain – Indicators p values and effect sizes (Islamist extremism and right-wing extremism)

6.2.2.5 Psychoticism Domain

P values and effect sizes for indicators in the psychoticism domain are presented in Table 35.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (p value)	Effect Size (Cohen's d)
Psychoticism	Unusual beliefs & experiences	.03	.06	.391	-.177
	Eccentricity	.04	.84	<.001*	-1.596
	Perceptual dysregulation	.08	.29	.115	-.450

Table 35 – Psychoticism domain – Indicators p values and effect sizes (Islamist extremism and right-wing extremism)

One out of three indicators in the psychoticism domain of the proposed terrorism risk assessment instrument presented a statistically significant mean difference between the sample groups. *Eccentricity* exhibited a larger mean score ($\bar{x} = .84$) among the right-wing extremists than Islamist extremists ($\bar{x} = .04$). Considering the large discrepancy in mean scores, the effect size was unsurprisingly large at $d = -1.596$.

6.2.2.6 Cognitive Domain

Like in the disinhibition domain, the indicators of the cognitive domain also did not display statistically significant mean differences between Islamist extremists and right-wing extremists. Results for the cognitive domain indicators can be viewed in Table 36.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (p value)	Effect Size (Cohen's d)
Cognitive	Intolerance	1.69	1.87	.099	-.305
	Inflexible	1.73	1.90	.064	-.313
	Disillusionment	.09	.03	.180	.219
	Planfulness (or lack of)	1.35	1.10	.215	.270

Table 36 – Cognitive domain – Indicators p values and effect sizes (Islamist extremism and right-wing extremism)

6.2.2.7 Identity Domain

The identity domain's indicators, too, did not present any statistically significant mean differences between both groups. These findings are interesting considering the prior discussion of *self-identity: unstable self-identity* in the descriptive data section. The assumption made based on the mean age at time of attack ($\bar{x} = 37.11$), was that *self-identity: unstable self-identity* may not be as relevant to right-wing extremists. This assumption was based on theoretical understandings from the developmental criminology field (Moffitt, 2018). P values and effect sizes for this domain's indicators are presented in Table 37.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Identity	Self-identity: Sense of invulnerability	.03	.03	.957	-.011
	Self-identity: Self-justifying	.17	.19	.783	-.057
	Self-identity: Unstable self-concept	.48	.35	.208	.253
	Group identity: Social support networks (gangs, religious group, online community)	.30	.35	.591	-.111
	Group identity: Online activity	.65	.94	.137	-.344

Table 37 – Identity domain – Indicators *p* values and effect sizes (Islamist extremism and right-wing extremism)

6.2.2.8 Ideology Domain

Like the two previous domains, the ideology domain too, did not display any statistically significant mean differences for Islamist extremists and right-wing extremists. Results for the indicators in the ideology domain are displayed in Table 38.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Ideology	Ideological world view that condones violent political action	1.95	1.61	.010	.849
	Claims affiliation to an extremist group or cause	1.10	1.16	.545	-.165
	View that injustices can be addressed through violent means	1.63	1.58	.671	.088

	no matter how extreme				
	View that the public is blind to or enabling injustice	.18	.39	.040	-.494

Table 38 – Ideology domain – Indicators p values and effect sizes (Islamist extremism and right-wing extremism)

6.2.2.9 General Criminality Domain

The final domain presented in this part of the results chapter is the general criminality domain. Surprisingly, this domain, like disinhibition, cognitive, and identity did not display any statistically significant mean differences across indicators. Results for the general criminality domain are presented in Table 39.

Domain	Indicator	Mean (Islamist extremism)	Mean (Right-wing extremism)	Significance (p value)	Effect Size (Cohen's d)
General Criminality	History of low-level criminality	.37	.29	.401	.174
	History of violent criminality	.32	.52	.178	-.331
	History of intimate partner violence	.04	.16	.159	-.432
	History of gang/criminal organization involvement	.03	.10	.371	-.272
	History of violence or threatening behaviour motivated by bias	.00	.06	.161	-.534

Table 39 – General criminality domain – Indicators p values and effect sizes (Islamist extremism and right-wing extremism)

6.3 Personality Profile Differences between Group-Based and Lone Actor Terrorists

As discussed in the methodology chapter of this dissertation, the second step in the validation process of Corrado's proposed DSM-5 PID-based terrorism risk assessment instrument was to examine potential personality differences between group-based terrorists and lone actors. This step was completed for a number of reasons. First, Corrado has asserted that national security services in Western liberal democracies have the most difficulty assessing risk emerging from the lone actor spectrum (Corrado & Doering, 2021). Second, Corrado has also argued that lone actors possess personality profiles distinct from other terrorists, as well as other offender groups (Corrado & Doering, 2021). Third, literature comparing personality profiles of terrorists and mass shooters has overwhelmingly focused on individual terrorist typologies (e.g., Capellan, 2015; Horgan et al., 2016; Lankford, 2012; Liem et al., 2018). Considering that the fourth step in the validation of Corrado's proposed instrument involved examining personality profiles differences in lone actor terrorists and mass shooters, it seemed crucial to first establish whether statistically significant differences in profiles of group-based and lone actor terrorists existed. As the results below display, several statistically significant differences were noted. Hence, it was decided to solely compare lone actors, rather than the entire terrorist sample, to the mass shooter sample. Before results from the conducted independent samples t-tests are presented, descriptive data collected on lone actor and group-based terrorists will be discussed.

6.3.1 Descriptive Data (Group-Based and Lone Actor Terrorists)

Like in the previous comparison (right-wing and Islamist extremism), descriptive data on lone actors and group-based terrorists was collected to examine potential differences or similarities in age at time of attack, employment status at time of attack, and education level at time of attack. Reasoning for the collection of this information has been provided in the earlier sections of the results chapter. Furthermore, additional information was gathered on those group-based terrorists and lone actors classified as Islamist extremists. The additional information collected related to their relationship to Islam, specifically examining whether there was a difference in the number of converts

versus born Muslims between both groups. This seemed relevant, as multiple case studies reviewed, indicated a tendency of lone actors to convert to Islam not long before perpetrating their respective attacks. As with the previous validation step, independent t-tests were run to assess whether the two groups differed significantly on the descriptive items (p and t values are discussed below). The discussion on descriptive differences and similarities will commence with the mean age at time of attack of both groups.

Group	Number of cases	Mean age at time of attack	Standard deviation
Entire terrorist sample	151	30.57	11.93
Group-based terrorists	70	29.57	11.11
Lone actors	79	31.19	12.66

Table 40 – Mean age at time of attack (group-based and lone actor terrorists)

As seen in Table 40, three cases, again, had to be excluded from the sample of right-wing extremists due to the extended nature of attacks, making it impossible to determine an age at time of attack. Interestingly when examining the mean age at time of attack for all three groups, there seemed to be little variation. Similarly, the standard deviation for all three groups did not differ significantly. This finding was confirmed by the independent t-test results ($t = .825$; $p = .411$)

Group	Number of cases	Employed at time of attack	Unemployed at time of attack
Entire terrorist sample	131	73 (55.7%)	58 (44.3%)
Group-based terrorists	58	34 (58.6%)	24 (41.4%)
Lone actors	71	38 (53.5%)	33 (47.5%)

Table 41 – Employment at time of attack (group-based and lone actor terrorists)

Table 41 displays the employment status at the time of attack of the entire terrorist sample, group-based terrorists, and lone actors. Alike the age at time of attack, there was little variance between the groups. Independent t-test results confirmed this finding ($t = -.576$; $p = .565$). All three groups displayed employment rates in the 50 percent range. The group with the highest percentage of unemployment at the time of attack were the lone actors (47.5 percent). Although there seemed to be little group differences on this variable, it still seems important to note that an unemployment rate in the 40 percent range is high compared to the general population. As a reminder, the

American national percentage of civilian unemployment was estimated to be 3.6 percent in March 2022 (U.S. Bureau of Labor Statistics, n.d.).

Group	Number of cases	Attending secondary education	No completion/secondary education	Secondary education	Post-secondary education
Entire terrorist sample	120	9 (7.5%)	20 (16.7%)	65 (54.2%)	26 (21.7%)
Group-based terrorists	58	4 (6.9%)	11 (19%)	34 (58.6%)	9 (15.5%)
Lone actors	61	5 (8.2%)	8 (13.1%)	31 (50.8%)	17 (27.9%)

Table 42 – Education level at time of attack (group-based and lone actor terrorists)

Education level at time of the attack was a variable examined for group-based and lone actor terrorists. As seen in Table 42, there was a similarity in percentage of individuals having attended secondary school at the time of their attacks. Considering the percentages displayed in Table 42, it is unsurprising that no statistically significant mean difference was found between the groups ($t = .266$; $p = .791$). While there was little discrepancy in numbers of individuals enrolled in secondary school at the time of attack, there was a difference in non-completion of secondary school. Group-based terrorists, in this sample, were more likely to not have completed secondary school (19 percent), compared to the lone actor sample (13.1 percent). Yet, this mean difference was not statistically significant ($t = -.866$; $p = .388$). Although more group-based terrorists did not complete secondary school, the number of those classified as being in possession of a secondary school diploma (58.6 percent) was larger than that of lone actors (50.8 percent). However, again this difference was not statistically significant ($t = -.943$; $p = .348$). When examining individuals with post-secondary education, lone actors were more common to have had successfully completed university studies (27.9 percent) compared to group-based terrorists (15.5 percent). Yet, once again no significant mean differences were found ($t = 1.596$; $p = .113$).

Group	Number of cases	Born into Islam	Converted to Islam
Islamist extremism	95	75 (78.9%)	20 (21.1%)
Islamist extremism group-based terrorists	56	47 (83.9%)	9 (16.1%)
Islamist extremism lone actors	39	28 (71.8%)	11 (28.2%)

Table 43 – Islamist extremism groupings – Type of religiosity

As discussed above, the final descriptive information collected on group-based and lone actor terrorists related to those classified as Islamist extremists. This information was collected to assess the commonly held belief (stemming from individual case studies), that lone actors were more likely to be converts to Islam. As seen in Table 43, the entire Islamist extremist sample consisted of 78.9 percent of individuals who were determined to have been born into the religion. Those classified as converts, only accounted for 21.1 percent of the entire Islamist extremist sample. Four cases had to be excluded due to lack of information. When examining the two sample groups, it was discovered that Islamist extremist group-based terrorists were more likely to be born into the religion (83.9 percent) than Islamist extremist lone actors (71.8 percent). Although not statistically significant ($t = 1.376$; $p = .173$), considering the discrepancy of 12.1 percent between the two groups, it seems reasonable to confirm that Islamist extremist lone actors are more likely to be newcomers to the religion.

6.3.2 Independent Samples T-Tests (Group-Based and Lone Actor Terrorists)

Having discussed the descriptive data on group-based and lone actor terrorists, this section presents the results of the independent samples t-tests conducted on each indicator of Corrado’s proposed DSM-5 PID terrorism risk assessment instrument. The aim of conducting independent samples t-tests was to explore whether there were statistically significant mean differences between the groups. Like in the previous step of the validation process, this section presents results by displaying p values to determine statistical significance, as well as effect sizes (Cohen’s d). Results, again, are examined by domain. As discussed previously, to minimize the risk of family-wise error, a Bonferroni correction was applied to the $alpha$ value for all independent samples t-tests conducted as part of the dissertation (Andrade, 2019). The original $alpha$ value of .05

was reduced to .001. All results equal to and below the Bonferroni-corrected *alpha* value of .001 were considered statistically significant. Cohen's *d* was utilized to measure effect sizes of the independent samples t-test results. Cohen's *d* values can be negative or positive depending on the direction of the decrease or increase in means of the sampled groups. Cohen's *d* values were assessed in the following way: (negative or positive): (+/-) 0 to 0.19 equals a trivial effect, (+/-) 0.2 to 0.5 equals a small effect, (+/-) 0.5 to 0.8 equals a medium effect, and (+/-) 0.8 or higher equals a large effect.

6.3.2.1 Detachment Domain

Table 44 displays the indicator means for both group-based and lone actor terrorists, as well as the *p* values and effect sizes for indicators in the detachment domain.

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Detachment	Withdrawal	.56	.91	<.001*	-.526
	Depressivity	.53	.86	<.001*	-.536
	Anhedonia	.48	.82	<.001*	-.596
	Intimacy avoidance	.22	.34	.190	-.212
	Suspiciousness	.16	.30	.042	-.330

Table 44 – Detachment domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

The detachment domain consisted of three indicators displaying mean differences between the groups considered statistically significant. *Withdrawal*, *depressivity*, and *anhedonia* all suggested highly significant mean differences between group-based and lone actor terrorists. Furthermore, all three indicators *withdrawal* (*d* = -.526), *depressivity* (*d* = -.536), and *anhedonia* (*d* = -.596) presented effect sizes in the medium range. These results suggested that the three indicators were statistically more important to risk profiles of lone actors.

6.3.2.2 Negative Affectivity Domain

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Negative Affectivity	Emotional dysregulation	.45	.52	.471	-.116
	Anxiety	.04	.13	.159	-.225
	Hostility	.67	.57	.211	.203
	Perseveration	.00	.06	.058	-.300
	Restricted affect	.05	.11	.190	-.211

Table 45 – Negative affectivity domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

Table 45 presents the *p* values and effect sizes for indicators in the negative affectivity domain. As seen above, none of the indicators in this domain stipulated statistically significant mean differences between group-based and lone actor terrorists.

6.3.2.3 Antagonism Domain

Like the previous domain discussed, antagonism, too, did not consist of any indicators exhibiting statistically significant mean differences between the sample groups (see Table 46).

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Antagonism	Manipulative	.21	.08	.091	.283
	Deceitful	.32	.33	.900	-.020
	Grandiose	.66	.73	.592	-.087
	Callousness	.16	.24	.368	-.147
	Attention seeking	.34	.22	.127	.198

Table 46 – Antagonism domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

6.3.2.4 Disinhibition Domain

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Disinhibition	Irresponsible	.27	.29	.821	-.037
	Impulsivity	.30	.47	.094	-.271
	Distractibility	.00	.13	.017	-.379
	Risk taking	.95	.78	.160	.251
	Rigid perfectionism	.07	.06	.915	.017

Table 47 – Disinhibition domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

As seen in Table 47, the disinhibition domain, too, did not include any indicators presenting statistically significant mean differences between group-based and lone actor terrorists.

6.3.2.5 Psychoticism Domain

Like the previous domains, the psychoticism domain, too, did not provide any indicators with statistically significant mean differences between the two groups. *P* values and effect sizes for indicators in the psychoticism domain are outlined in Table 48.

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Psychoticism	Unusual beliefs & experiences	.04	.06	.543	-.099
	Eccentricity	.18	.46	.010	-.418
	Perceptual dysregulation	.12	.24	.171	-.221

Table 48 – Psychoticism domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

6.3.2.6 Cognitive Domain

Whereas few indicators in previous domains displayed statistically significant results, the cognitive domain provided two out of four indicators presenting significant mean differences between both groups. Results for the cognitive domain's indicators are provided in Table 49.

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Cognitive	Intolerance	1.89	1.34	<.001*	.834
	Inflexible	1.85	1.52	.002	.518
	Disillusionment	.11	.10	.868	.027
	Planfulness (or lack of)	1.56	1.05	<.001*	.558

Table 49 – Cognitive domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

Intolerance and *planfulness (or lack of)*, as seen in Table 49, both displayed significant mean differences between group-based and lone actor terrorists. Both indicators appeared to be more prevalent in group-based terrorists. However, the indicators also seemed to be relevant to lone actors. *Intolerance* presented a mean of $\bar{x} = 1.89$ for group-based terrorists and $\bar{x} = 1.34$ for lone actors. The effect size for *intolerance* was considered large. *Planfulness (or lack of)* also presented a statistically significant mean differences between the groups. The effect for this indicator was considered moderate in size ($d = .558$). As discussed, both indicators appeared to be indicative of increased risk of engaging in violence for lone actors and group-based terrorists. Yet, results also suggested that risk emerging from these indicators would be more relevant to connected group-based terrorists.

6.3.2.7 Identity Domain

Table 49 outlines the *p* values and effect sizes for indicators situated in the identity domain. This domain, too, did not include any statistically significant mean differences (see Table 50).

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Identity	Self-identity: Sense of invulnerability	.03	.03	.937	.013
	Self-identity: Self-justifying	.23	.10	.031	.358
	Self-identity: Unstable self-concept	.40	.51	.191	-.213
	Group identity: Social support networks (gangs, religious group, online community)	.40	.19	.005	.467
	Group identity: Online activity	.45	.85	.003	-.489

Table 50 – Identity domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

6.3.2.8 Ideology Domain

The ideology domain consisted of several indicators portraying statistically significant mean differences between group-based and lone actor terrorists. Table 51 outlines the *p* values and effect sizes for the indicators situated in the ideology domain.

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Ideology	Ideological world view that condones violent political action	1.96	1.46	<.001*	.835
	Claims affiliation to an extremist group or cause	1.08	.99	.189	.210
	View that injustices can be addressed through violent means no	1.63	1.63	.974	-.005

matter how extreme				
View that the public is blind to or enabling injustice	.14	.38	<.001*	-.570

Table 51 – Ideology domain – Indicators p values and effect sizes (group-based and lone actor terrorists)

An indicator that displayed large effect sizes in this domain was *ideological world view that condones violent political action*. Although seemingly more relevant to the risk of group-based terrorists, the mean score for the lone actor group across the discussed indicator suggested that *ideological world view that condones violent political action* was also indicative of risk for engagement in political violence. Furthermore, *view that the public is blind to or enabling injustice* appeared to be more relevant to lone actors ($\bar{x} = .38$) than group-based terrorists ($\bar{x} = .14$). This difference presented a moderate effect size ($d = -.570$).

6.3.2.9 General Criminality Domain

Table 52 outlines the statistical significance and effect sizes for indicators in the general criminality domain. As seen below, there were no indicators found suggesting statistically significant mean differences between group-based and lone actor terrorists.

Domain	Indicator	Mean (Group-Based)	Mean (Lone Actor)	Significance (p value)	Effect Size (Cohen's d)
General Criminality	History of low-level criminality	.37	.38	.901	-.020
	History of violent criminality	.42	.29	.153	.236
	History of intimate partner violence	.04	.09	.279	-.173
	History of gang/criminal	.05	.03	.425	.130

organization involvement				
History of violence or threatening behaviour motivated by bias	.01	.03	.610	-.083

Table 52 – General criminality domain – Indicators *p* values and effect sizes (group-based and lone actor terrorists)

6.3.3 Assessment of Independent T-Test Results (Group-based and Lone Actor Terrorist)

As seen throughout this section of the results chapter, multiple domains contained indicators expressive of statistically significant mean differences between group-based and lone actor terrorists. Three out of nine domains in the instrument included significant means differences between the groups. Although some indicators suggested small or medium effect sizes, there were a fair number of indicators with differences in mean sizes classified as large. This suggests that there are personality profiles differences between group-based and lone actor terrorists which cannot be ignored and should be explored further in future research. As such, the decision was made to continue the validation of the instrument by examining personality profiles differences and similarities between mass shooters and lone actor terrorists, specifically. The decision made was both based on the findings of the group-based and lone actor terrorist comparison, and trends in literature as discussed in chapter two of this dissertation.

6.4 Personality Profile Differences between Mass Shooters and Lone Actor Terrorists

Research into personality profile differences of mass shooters and terrorists constitutes a more recent development. Research by Lankford (2012), for instance, examined profiles of different types of mass shooters and suicide terrorists. Furthermore, Liem et al. (2018) took a more in-depth look at variances in profiles of homicide

offenders and lone actor terrorists. Lankford (2012) and Liem et al. (2018), among others, have discovered interesting similarities between these previously determined distinct offender groups (Capellan, 2015; Horgan et al., 2016). Corrado, too, has asserted that lone actors present unique personality profiles unlike other offender groups (Corrado & Doering, 2021). Considering the direction scholarship on profiles of mass shooters and terrorists has embarked on, and how it stands in contrast to Corrado's assertion, has encouraged this part of the validation study (Corrado & Doering, 2021). Before examining the results of the independent samples t-tests that were conducted on 39 indicators of the proposed instrument, descriptive data is presented.

6.4.1 Descriptive Data (Mass Shooters and Lone Actor Terrorists)

As explained in the methodology chapter of the dissertation, this fourth step of the validation of Corrado's proposed instrument was conducted utilizing case files of lone actor terrorists having perpetrated their attack in the United States. This decision was made as the comparison group (mass shooters) also consisted of individuals solely having perpetrated their attacks on American soil. Although numbers on mass shootings differ according to definition, it is apparent that this type of violent crime is predominantly committed in the American context (Kwon & Cabrera, 2019; Metzl & MacLeish, 2015; Nathenson, 2020). To best compare groups in the same cultural context, lone actors were chosen from the overall terrorist sample (N = 154) by target country. This resulted in a US lone actor sample of n = 50 and a mass shooter sample of n = 30. As seen in Table 53, mean age at time of attack was compared. As with previous validation steps, employment status at time of attack and educational level at time of attack were also considered. All descriptive items underwent significance testing. *T* and *p* values of the independent samples t-tests will be discussed.

Group	Number of cases	Mean age at time of attack	Standard deviation
Lone actors (US)	50	33.10	13.808
Mass shooters (US)	30	31.80	13.637

Table 53 – Mean age at time of attack (lone actor terrorists and mass shooters)

Interestingly the mean age at time of attack for both lone actors and mass shooters was closely related at $\bar{x} = 33.10$ (lone actors) and $\bar{x} = 31.80$ (mass shooters)

each. As such, it is unsurprising that there were no statistically significant mean differences found between the groups ($t = .410$; $p = .683$). Furthermore, the similarities extended when examining the standard deviation for both groups (see Table 53).

Group	Number of cases	Employed at time of attack	Unemployed at time of attack
Lone actors (US)	47	27 (57.5%)	20 (42.5%)
Mass shooters (US)	29	11 (37.9%)	18 (62.1%)

Table 54 – Employment at time of attack (lone actor terrorists and mass shooters)

Although similar in age at time of attack, lone actors and mass shooters in this sample differed on employment status at time of attack. As seen in Table 54, as much as 62.1 percent of mass shooters were unemployed at the time of attack. Comparatively, 42.5 percent of lone actors were unemployed at the time of their attack. Although displaying a difference of almost 20 percent, the mean difference was not statistically significant ($t = 1.66$; $p = .101$). Unemployment was higher amongst mass shooters, yet lone actors also presented with a disproportionately large unemployment rate. Comparing these statistics to the previously discussed average rate of American national civilian unemployment (3.6 percent in March 2022) suggests that employment may be a protective factor among terrorists and mass shooters (U.S. Bureau of Labor Statistics, n.d.).

Group	Number of cases	Attending secondary education	No completion/secondary education	Secondary education	Post-secondary education
Lone actors (US)	41	2 (4.9%)	6 (14.6%)	18 (43.9%)	15 (36.6%)
Mass shooters (US)	26	4 (15.4%)	2 (7.7%)	14 (53.8%)	6 (23.1%)

Table 55 – Education level at time of attack (lone actor terrorists and mass shooters)

Table 55 outlines the education level of both groups at the time of their attack. As seen, lone actors and mass shooters differed substantially regarding academic achievement. For instance, 15.4 percent of mass shooters were attending secondary school when they engaged in violence (compared to 4.9 percent of lone actors). A valid

assumption may be that this number derived from the inclusion of shooters committing their offenses in educational settings. However, examining the mass shooter study sample revealed that many educational setting shooters were either not part of the school community in which they perpetrated their crime, or the attacks occurred in university settings. Furthermore, some public place shooters in the sample were also determined to have attended secondary school at the time of their attack. Although, a difference of more than 10 percent was found between lone actors and mass shooters, conducted independent samples t-tests on the 'attending secondary education' variable did not confirm that mass shooters were significantly more likely to be enrolled as a secondary student at the time of their attack ($t = -1.32$; $p = .196$).

Another interesting discovery was that lone actors, in this study, were almost twice as likely to not have completed secondary school, compared to the mass shooter sample. However, again, this finding was not statistically significant ($t = .846$; $p = .401$). Furthermore, there was more than a ten percent discrepancy between the groups when looking at completion of secondary school. Mass shooters in this sample were more likely to have achieved a secondary school diploma than the lone actor comparison group. Yet, despite the difference in percentages, no statistically significant mean differences were found on the variable ($t = -.786$; $p = .435$). Although more absent in the secondary school category, lone actors were more represented in the post-secondary realm, with 36.6 percent of the sample having completed university education compared to 23.1 percent of the mass shooter sample. Independent t-test results of the variable 'post-secondary education' did not reveal statistically significant mean differences between the groups ($t = 1.189$; $p = .239$).

6.4.2 Independent Samples T-Tests (Mass Shooters and Lone Actor Terrorists)

The descriptive data presented in the previous section indicated differences between mass shooters and lone actors in relation to employment status and education level at the time of attack. Yet, most of these differences were not statistically significant. To determine further differences and similarities in risk profiles, independent samples t-tests across 39 indicators of Corrado's proposed DSM-5 PID-based terrorism risk

assessment instrument were conducted. Two indicators in the ideology domain were removed for this part of the validation as they specifically related to politically related grievances. The aim of this part of the validation process was to explore whether the proposed instrument could be utilized to determine risk of violence across a sample of mass shooters. Alike the previous step of the validation process, this section presents results by displaying *p* values to determine statistical significance, as well as effect sizes (Cohen's *d*). Results will be examined by domain. As discussed previously, to minimize the risk of family-wise error, a Bonferroni correction was applied to the *alpha* value for all independent samples t-tests conducted as part of the dissertation (Andrade, 2019). The original *alpha* value of .05 was reduced to .001. Although two indicators were removed from the instrument, the Bonferroni-corrected *alpha* value was still determined to be .001. All results equal to and below the Bonferroni-corrected *alpha* value of .001 were considered statistically significant. Cohen's *d* was utilized to measure effect sizes of the independent samples t-test results. Cohen's *d* values can be negative or positive depending on the direction of the decrease or increase in means of the sampled groups. Cohen's *d* values were assessed in the following way: (negative or positive): (+/-) 0 to 0.19 equals a trivial effect, (+/-) 0.2 to 0.5 equals a small effect, (+/-) 0.5 to 0.8 equals a medium effect, and (+/-) 0.8 or higher equals a large effect.

6.4.2.1 Detachment Domain

Table 56 represents the results of the independent samples t-tests conducted on indicators in the detachment domain. Statistical significance is displayed through the *p* value and Cohen's *d* indicates the effect sizes of the results.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Detachment	Withdrawal	.86	.27	<.001*	.900
	Depressivity	.94	.70	.210	.323
	Anhedonia	.86	.50	.037	.519
	Intimacy avoidance	.28	.57	.089	-.425
	Suspiciousness	.42	.53	.432	-.198

Table 56 – Detachment domain – Indicators *p* values and effect sizes (lone actor terrorists and mass shooters)

Overall, the detachment domain only provided one indicator demonstrating a statistically significant mean difference between mass shooters and lone actors. *Withdrawal* seemed to be more common in the lone actor sample ($\bar{x} = .86$) than the mass shooter group ($\bar{x} = .27$). This finding was accompanied by a large effect size of $d = .900$.

6.4.2.2 Negative Affectivity Domain

Like the previous domain, negative affectivity, too included one indicator displaying statistically significant mean differences between lone actors and mass shooters. *P* values and effect sizes of indicators in the negative affectivity domain are outlined in Table 57.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Negative Affectivity	Emotional dysregulation	.54	1.40	<.001*	-1.273
	Anxiety	.12	.43	.041	-.536
	Hostility	.54	1.03	.004	-.778
	Perseveration	.08	.30	.094	-.458
	Restricted affect	.16	.47	.050	-.551

Table 57 – Negative affectivity domain – Indicators *p* values and effect sizes (lone actor terrorists and mass shooters)

Interestingly, *emotional dysregulation* seemed to be a much more common trait in mass shooters ($\bar{x} = 1.40$) than lone actors ($\bar{x} = .54$). This finding was supported by a large effect size of $d = -1.273$.

6.4.2.3 Antagonism Domain

Antagonism, is the first domain discussed to not have displayed statistically significant mean differences between mass shooters and lone actors. Results from the indicators in the antagonism domain are presented in Table 58.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Antagonism	Manipulative	.06	.20	.148	-.399
	Deceitful	.38	.40	.909	-.026
	Grandiose	.84	.30	.002	.668
	Callousness	.26	.67	.013	-.653
	Attention seeking	.18	.43	.068	-.450

Table 58 – Antagonism domain – Indicators *p* values and effect sizes (lone actor terrorists and mass shooters)

6.4.2.4 Disinhibition Domain

Table 59 presents the indicator results from the disinhibition domain. None of the indicators in the disinhibition domain displayed statistically significant mean differences between mass shooters and lone actors. Hence, it was concluded that no further discussion on this domain was necessary.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (<i>p</i> value)	Effect Size (Cohen's <i>d</i>)
Disinhibition	Irresponsible	.34	.47	.376	-.225
	Impulsivity	.56	.53	.881	.035
	Distractibility	.12	.20	.417	-.188
	Risk taking	.64	.33	.036	.493
	Rigid perfectionism	.08	.20	.288	-.279

Table 59 – Disinhibition domain – Indicators *p* values and effect sizes (lone actor terrorists and mass shooters)

6.4.2.5 Psychoticism Domain

Psychoticism, too, did not include indicators portraying statistically significant mean differences between mass shooters and lone actors. *P* values and effect sizes of indicators in the psychoticism domain are outlined in Table 60.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (p value)	Effect Size (Cohen's d)
Psychoticism	Unusual beliefs & experiences	.06	.20	.196	-.363
	Eccentricity	.64	.17	.002	.647
	Perceptual dysregulation	.36	.47	.545	-.140

Table 60 – Psychoticism domain – Indicators p values and effect sizes (lone actor terrorists and mass shooters)

6.4.2.6 Cognitive Domain

P and d values for cognitive domain indicators are displayed in Table 61. Again, no statistically significant mean differences were discovered.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooter)	Significance (p value)	Effect Size (Cohen's d)
Cognitive	Intolerance	1.18	.57	.003	.707
	Inflexible	1.42	.83	.002	.730
	Disillusionment	.14	.10	.642	.108
	Planfulness (or lack of)	.90	.90	1.00	.000

Table 61 – Cognitive domain – Indicators p values and effect sizes (lone actor terrorists and mass shooters)

6.4.2.7 Identity Domain

Identity, like the disinhibition domain, did not provide any indicators with statistically significant mean differences between the two groups. Results for indicators in the identity domain are outlined in Table 62.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (p value)	Effect Size (Cohen's d)
Identity	Self-identity: Sense of invulnerability	.04	.07	.673	-.098
	Self-identity: Self-justifying	.08	.17	.355	-.244
	Self-identity: Unstable self-concept	.58	.83	.122	-.406
	Group identity: Social support networks (gangs, religious group, online community)	.12	.00	.013	.461
	Group identity: Online activity	.72	.63	.662	.101

Table 62 – Identity domain – Indicators p values and effect sizes (lone actor terrorists and mass shooters)

6.4.2.8 Ideology Domain (Partial)

As discussed previously, two indicators were removed from the ideology domain as part of this validation study. Although two indicators were deemed unfit for this series of independent samples t-tests, the decision was made to keep *claims affiliation to an extremist group or cause* and *view that injustices can be addressed through violent means no matter how extreme* in the study. Both indicators were deemed relevant to the mass shooter sample. *Claims affiliation to an extremist group or cause* was kept because individual case studies of mass shooters had revealed a likelihood of affiliation with an extremist cause, even if this was not a determining factor in the decision to engage in violence. *View that injustices can be addressed through violent means no matter how extreme* was not removed because this indicator spoke to a broader psychological justification for violence. Results for these two indicators are displayed in Table 63.

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (p value)	Effect Size (Cohen's d)
Ideology (Partial)	Claims affiliation to an extremist group or cause	.96	.40	<.001*	.887
	View that injustices can be addressed through violent means no matter how extreme	1.62	.17	<.001*	2.623

Table 63 – Partial ideology domain – Indicators p values and effect sizes (lone actor terrorists and mass shooters)

As seen in Table 63, both *claims affiliation to an extremist group or cause* and *view that injustices can be addressed through violent means no matter how extreme* portrayed statistically significant mean differences between the two sample groups. Both indicators displayed larger means in the lone actor sample. *Claims affiliation to an extremist group or cause* had a mean score of $\bar{x} = .96$ among lone actors and a mean $\bar{x} = .40$ in the mass shooter group. This difference was supported by a large effect size of $d = .887$. *View that injustices can be addressed through violent means no matter how extreme* had an even larger mean difference of $\bar{x} = 1.62$ in the lone actor sample and $\bar{x} = .17$ in the mass shooter group. This finding, as well, was confirmed by a large effect size of $d = 2.623$.

6.4.2.9 General Criminality Domain

Table 64 presents the p values and effect sizes of indicators in the general criminality domain. Like in previous validation steps, none of the indicators displayed statistically significant mean differences between the two groups (see Table 64).

Domain	Indicator	Mean (Lone Actor Terrorists)	Mean (Mass Shooters)	Significance (p value)	Effect Size (Cohen's d)
General Criminality	History of low-level criminality	.44	.40	.771	.067
	History of violent criminality	.30	.10	.046	.453
	History of intimate partner violence	.12	.17	.651	-.105
	History of gang/criminal organization involvement	.02	.00	.442	.178
	History of violence or threatening behaviour motivated by bias	.04	.00	.159	.255

Table 64 – General criminality domain – Indicators p values and effect sizes (lone actor terrorists and mass shooters)

Chapter 7.

Discussion

7.1 Interrater Reliability

The first section of the discussion chapter examines results of the interrater reliability study which was conducted using the 41 indicators of Corrado's proposed DSM-5 PID-based terrorism risk assessment instrument (for results refer to chapter 6). Overall, interrater reliability was inconsistent. Although some indicators displayed good agreement, none but one, *view that injustices can be addressed through violent means no matter how extreme*, reached the very good agreement threshold. This inconsistency may be explained by looking at two different factors. First, using open-source data for risk assessment validation provides challenges. For instance, whereas a clinician can ask an individual questions, in open-source risk assessment, the questions must be answered by often using circumstantial information. Yet, as discussed prior, many risk assessment instruments in their exploratory stages are validated using open-source data.

Another possible reason why this part of the study may have resulted in such a variety of k values, is the interpretive nature of some of the indicators in the proposed DSM-5 PID-based terrorism risk assessment instrument. After completion of the debriefing session between both raters, several indicators were identified as challenging to assess. *Planfulness (or lack of)* was a difficult indicator to score. This indicator, at its core, is bidirectional. This led to inconsistent results. Both raters suggested that this indicator should be modified for future application. *Risk taking*, too, was difficult to assess given that the sample utilized had already committed attacks. As such, it was unclear whether attack features should be considered when scoring cases. For future assessment of the instrument using open-source data, this challenge should be taken into consideration. *Self-identity: self-justifying* was another indicator that caused difficulty in scoring. Many extreme ideologies provide justification for violence. As such it was, at times, unclear whether subscribing to such ideology-based justifications fell into the *self-identity: self-justifying* category.

7.1.1 Interrater Reliability – Detachment Domain

As discussed in chapter six, all indicators in the detachment domain ranged from fair to good agreement. The indicator with the highest agreement score was *withdrawal* ($d = .715$). It is unsurprising that this indicator displayed good agreement. The *withdrawal* indicator relates to a stage/process-related observable behavior. To elaborate, this indicator examines withdrawal from friends and family over time. Information for this indicator was easily gathered through statements made by family and friends. As such, it was not an indicator that necessarily required information from the perpetrator themselves. Withdrawal from family and friends has been a focus in many stage-based terrorism risk assessment instruments (Klausen et al., 2016; Moghaddam, 2005; Smith, 2018).

Depressivity and *anhedonia* also indicated good agreement. Again, this good agreement is unsurprising. Both indicators are related to one another (as seen in the assessment questions). Information was often made available by those closest to the perpetrator. This information frequently related to mental wellbeing, including whether the perpetrator suffered from *depressivity* or *anhedonia*. One of the assessment questions for *anhedonia* relates to feelings of emotional emptiness in life. This is a common theme found in the academic literature surrounding extreme ideological radicalization and terrorist recruitment. The meaning maintenance model is one important theory that has been applied to explain swift radicalization into extremist/terrorist groups (Mohamed Ali et al., 2017). The model asserts that individuals crave a sense of meaning in their life and that extremist ideology provides a purpose. Heine et al. (2006) explain that “*the meaning maintenance model (MMM) proposes that people have a need for meaning; that is, a need to perceive events through a prism of mental representations of expected relations that organizes their perceptions of the world (Heine et al., 2006, p. 88)*”.

Although also utilized in other realms, researchers like Mohamed Ali et al. (2017) have used the meaning maintenance model to explain terrorist radicalization. According to the meaning maintenance model, four conditions must be met for an individual to perceive meaning of life. First, they must believe that society is just and fair. Second,

individuals need to understand their role and obligations in society. According to Mohamed Ali et al. (2017), many individuals do not comprehend their role in society and therefore are searching for something to fill this perceived gap. Third, individuals need to feel the freedom to pursue their individual values in a society without threat. Last, individuals need to have the capabilities to achieve values that are cherished by the society which they are part of (Mohamed Ali et al., 2017). All of these factors may explain the common presence of *anhedonia* in terrorist populations.

Another prominent radicalization theory that emphasizes the desire of individuals to feel needed in society or to fulfill a certain role is the quest for significance model of radicalization. According to Dugas & Kruglanski (2014), "*the quest for significance is conceptualized as a fundamental desire to achieve a sense of respect, or more colloquially, to "matter" and "be someone"*" (p. 424)." This theory, as well, speaks to the importance of *anhedonia* as an indicator in terrorism risk assessment instruments. Not only have researchers identified "sense of meaning" as an important factor in radicalization, organizations such as Al Qaeda and ISIS have also recognized this desire as an important vulnerability. As such, they have emphasized their ability to provide individuals with a role and meaning. This emphasis became especially apparent when examining recruitment propaganda for foreign fighters joining the Caliphate in Iraq and Syria. Being provided with the opportunity to fulfil important roles in building a "new" state/society, radicalized many, and motivated some to join the armed struggle (Mahood & Rane, 2017).

Another indicator which displayed moderate agreement was *intimacy avoidance*. The debriefing session between both raters revealed that the avoidance of intimacy was interpreted to a different degree. One rater solely examined "intimate" relationships, while the other also accepted "familial" relationships. Hence, no more than a moderate agreement was reached. For future application of the instrument, it should be clarified what constitutes intimate relationships. The weakest indicator in the detachment domain, was *suspiciousness*. This indicator displayed a fair agreement score. The fair agreement score, too, could be explained by the interpretive nature of the indicator. The assessment questions for *suspiciousness* refer to "others". This can be seen in question one and two of this indicator: *Does the subject demonstrate and/or communicate*

mistrust in the motives of others and believe that others want to harm them? and *does the subject demonstrate and/or communicate a reluctance to confide in others?* It is unclear from the questions, whether “others” includes only individuals or also larger-scale entities such as governments/organizations. Many perpetrators expressed *suspiciousness* towards their government and its actions, but not towards individuals they were in immediate contact with. This indicator again, for future assessment, should be clarified.

7.1.2 Interrater Reliability – Negative Affectivity Domain

The negative affectivity domain displayed indicators ranging from fair to good agreement between both raters. The strongest indicator in this domain, with a *k* value of .765 was *restricted affect*. Both raters agreed that this indicator was hard to assess using open-source data. As such agreement on this indicator was often the result of lack of information available. Interestingly, information for this indicator was much more readily available when creating case files on mass shooters. This may speak to varying media attention provided to these two offender groups. One main difference that was discovered when collecting information on both terrorists and mass shooters, was the availability of full life histories and profiles for the latter group. There seemed to be an inherent interest in understanding why mass shooters committed their attacks. Vargas et al. (2020) confirmed this trend when analysing google search entries after mass shootings had occurred. Vargas et al. (2020) found that search engine entries relating to mental health, gun violence, and legal reform, significantly increased in the week after a mass shooting occurred. Considering these findings, it appears that the media is filling a public interest in discussing mental health of perpetrators for this type of offense. The public interest itself may, in part, be explained by the lack of ideology providing reasoning to the public.

Another indicator that fell into the good agreement category was *anxiety*. Information on this indicator was often gathered by examining accounts of people close to the perpetrator such as teachers, parents, and peers. This indicator was less vulnerable to interpretation bias since it presented clear boundaries. *Hostility* displayed

moderate agreement. One possible explanation which was identified in the debriefing session was that ideologies themselves already required hostile thought processes. For instance, Islamist extremism or Jihadism as an ideology outlines the rightful killing of anyone deemed a *kuffar*²⁴ (Wiktorowicz, 2006). This thought process itself may be considered hostile. Similarly, right-wing extremism is based on the idea that there are classes of people based on race. For example, the Ku Klux Klan, one of the most notorious right-wing extremist groups, believes in the supremacy of the White race (Southern Poverty Law Center, n.d.). Those that admire and reminisce the Third Reich (neo-Nazis), believe in the justified mass murder of those deemed “Untermenschen” or racially inferior (Schafft, 2004). Subscribing to this thought process, again, arguably requires some hostile tendencies. Considering the ideologies examined in this study, the raters were not consistent on the degree of importance placed on individuals subscribing to inherently hostile political viewpoints.

Lack of agreement on the *perseveration* indicator, as well, was likely the result of utilizing open-source data. Especially assessment question three for this indicator, *is the subject unable to undertake set shifting (changing of goals, tasks, or activities) as required?* had to be answered using information provided by employment and school records. This likely resulted in different interpretations of the circumstantial data provided. It is suggested that the indicator be modified for the purposes of terrorism risk assessment.

7.1.3 Interrater Reliability – Antagonism Domain

The antagonism domain, overall, had some of the lowest agreement scores. None of the indicators displayed very good or good weighted kappa values. The two indicators with the highest *k* values were *manipulative* ($k = .476$) and *attention seeking* ($k = .430$). *Manipulative* was a tougher indicator to score since, again, this indicator had to be scored using circumstantial information such as information provided from peers, school personnel, and through police interactions (if applicable). Like with many previous

²⁴ Non-believers or infidels (Burki, 2011; Wiktorowicz, 2006)

indicators, this possibly led to bias in interpretation. Furthermore, it became apparent, that one rater placed more importance on the actual attack features than the other. This variance was also present when scoring *attention seeking*. It was difficult to assess whether the violent act itself constituted the seeking of attention.

Deceitful was another indicator that displayed only a fair k value of .243. Here again, a difficulty assessing cases utilizing the questions provided was experienced. It was unclear whether this indicator related to deceit as witnessed in day-to-day interactions, or in more formal settings such as when questioned by the authorities. Either way, it was difficult to collect sufficient information on this indicator utilizing open-source data. Both *grandiose* ($k = .306$ - fair agreement) and *callousness* ($k = .166$ - poor agreement) likely suffered from the same dynamic as discussed above relating to ideologies being inherently characteristic of hostile, callous, and grandiose thought processes. As discussed, it was unclear to what extent the ideology a perpetrator was subscribing to, should be indicative of their hostile, callous, and grandiose traits. This likely resulted in the fair to poor agreement scores for these indicators.

7.1.4 Interrater Reliability – Disinhibition Domain

Despite presenting one indicator with a good weighted kappa value, the disinhibition domain suffered from many low agreement scores. Both *distractibility* ($k = .176$) and *rigid perfectionism* ($k = .179$) displayed poor k values. *Distractibility*, again, likely suffered from the use of circumstantial data. *Distractibility* was often assessed using information about school performance. Since there was a lack of information available relating directly to this indicator, life experiences and interactions were used to assess the indicator. This, again, led to significant room for interpretation by both raters. *Rigid perfectionism*, too, was difficult to assess given the use of open-source data. Two out of the three assessment questions for this indicator required direct contact with and observation of the perpetrator. The only assessment question that could be utilized to assess the presence of the trait related to interpersonal relationships. Unfortunately, this may have led to poor agreement between the raters.

Risk taking ($k = .211$) displayed fair agreement between both raters. As with previous domains, this indicator likely suffered from a discrepancy in the degree of importance placed on the commission of the attack itself. *Irresponsibility* ($k = .320$), too, only displayed a fair agreement score. This indicator had to be assessed utilizing circumstantial data relating to school and occupational performance. Hence, this likely led to a discrepancy based on varying interpretations of the data. Last, *impulsivity* ($k = .637$) displayed a good agreement score. The good agreement may be explained by the clear boundaries of this indicator. There was no circumstantial data used to assess this indicator. As such, although generally considered having a low mean score across the sample, the lack of presence may have led to the good agreement between both raters.

7.1.5 Interrater Reliability – Psychoticism Domain

The psychoticism domain, across all indicators, displayed moderate agreement. The debriefing session revealed partial reasoning for the moderate agreement. *Unusual beliefs & experiences* ($k = .487$) and *perceptual dysregulation* ($k = .467$) did not present in many of the scored cases. Yet, when these traits were present in cases, the individuals were often described as having been diagnosed with a psychotic disorder (e.g., schizophrenia, schizoaffective disorder, delusional disorder). Discrepancy on these indicators was discussed during the debriefing session and it became apparent that one rater did not equate these diagnoses with the given indicators. This likely occurred due to a lack of psychological background in the rater. *Eccentricity* ($k = .481$), too, only indicated moderate agreement. Again, this was likely a result of the difference in importance placed on the subscription to an extremist ideology. To elaborate, right-wing ideology overwhelmingly emphasizes the importance of alternate explanations, or what those not adhering to right-wing ideology would consider conspiracy theories.

For instance, the Zionist Occupation Government (ZOG) theory is predominant in many right-wing ideologies (Bjorgo, 1993). Furthermore, many right-wing individuals also lack trust in government authorities believing that their rights are constantly threatened. In the US, this conspiracy thought is, in part, based on incidents such as Ruby Ridge and Waco (Hamm, 1997). Another more recent development spreading across the

globe, is the subscription to the QAnon conspiracy theories. QAnon are internet-based political conspiracy theories that have since developed into a global political opposition movement. The premise of QAnon is that satanic, at times cannibalistic, child trafficking rings operate underground without the knowledge of the public and that these rings consist of the wealthiest, most successful individuals including those at the top of their profession, politicians, and celebrities. The physical impact this conspiracy construct has had was demonstrated in 2021 when QAnon followers, in part, were responsible for the storming of the US capitol (Moskalenko & McCauley, 2021).

7.1.6 Interrater Reliability – Cognitive Domain

As discussed in chapter four of this dissertation both the cognitive and identity domains derive from the CAPP. The cognitive domain includes four indicators, *intolerance*, *inflexible*, *disillusionment*, and *planfulness (or lack of)*. As discussed at the beginning of the discussion chapter, *planfulness (or lack of)* was a difficult indicator to score. This is reflected in the poor weighted kappa value of $k = .004$. It is assumed that this low score is caused by the indicator being bidirectional. As such both raters suggest that this indicator should be modified in the future. The other two poor agreement indicators in this domain were *intolerance* ($k = .178$) and *inflexible* ($k = .147$). These indicators, again, are assumed to be displaying such low agreement since there was a varying degree of importance placed on ideology. Considering that individuals attracted to extreme ideologies, are often intolerant and inflexible in their political views, this made it difficult to score these indicators. More clarity on how much importance should be placed on subscription to extreme ideologies should be considered for future research.

The only indicator portraying moderate agreement, was *disillusionment* ($k = .428$). This indicator, too, was difficult to assess utilizing open-source data. As such the only indicator that could be used to assess *disillusionment* was a change in political views or religion. Converts were considered for this indicator, as well as those individuals changing views affecting their political extremist activity. One example identified was Beate Zschaepe, an infamous German neo-Nazi convicted of 15 counts of murder. As a teenager she was active in a left-wing organization called “Die Zecken” before changing

her views and becoming an important, full-fledged member of the German neo-Nazi scene (Fromm & Frank, 2015).

7.1.7 Interrater Reliability – Identity Domain

Like the cognitive domain, identity, too, was derived from the CAPP. Overall, the identity domain ranged from poor to moderate agreement. The indicator with the lowest weighted kappa score was *self-identity: self-justifying* ($k = .127$). This indicator, as discussed at the beginning of this chapter, caused much difficulty in scoring. As explained, many extreme ideologies provide justification for violence. Hence, it was at times, unclear whether subscribing to such ideology-based justifications fell into the *self-identity: self-justifying* category. *Group identity: Social support networks (gangs, religious group, online community)* displayed fair agreement ($k = .284$). The debriefing session between the raters revealed, that it was unclear what constituted a “group”. For instance, some individuals were not necessarily connected to an official group or cell but committed their attacks as part of a groups of peers. Hence, they planned the attacks as a peer group but the peer group itself was not connected to an official organization. It was discussed that one possible remedy could be to add an additional indicator to the instrument relating to the existence of radicalized family or friends. Not only did this type of connection frequently appear in the utilized case studies, but this indicator has also been presented in several of the other discussed terrorism risk assessment instruments (see chapter three).

Self-identity: sense of invulnerability ($k = .563$), *self-identity: unstable self-concept* ($k = .519$), and *group identity: online activity* ($k = .569$) all displayed moderate agreement. *Sense of invulnerability* was only assessable by examining the ideologies perpetrators had subscribed to. For example, Islamist extremism or Jihadism is based on the idea of an afterlife in paradise. Waging Jihad and killing *kuffars*, according to extreme interpretations of Islam, is rewarded with martyrdom and a place in paradise. As such, those that believe in Islamist extremism/Jihadism, inherently believe they are invulnerable (Maher, 2016).

Self-identity: unstable self-concept was mostly assessed by examining the radicalization process of the individual, including whether there was a history of conversion. The radicalization process information was gathered from family and friends, who described changing interests, clothing, and oftentimes withdrawal from those closest to the perpetrator. This finding is in line with reviewed literature in chapter two of the dissertation. Many stage-based radicalization theories outline such a process (e.g., Moghaddam, 2005). *Group identity: online activity*, although seemingly important, needed to be expanded. In many cases, a variety of online activity ranging from simply posting/reposting on social media websites to operating full extremist websites or chatrooms was present. Both raters felt that the range of activity would be better captured by creating an entire domain surrounding online presence.

7.1.8 Interrater Reliability – Ideology Domain

The ideology domain was added to Corrado's proposed terrorism risk assessment instrument due to the incorporation of indicators relating to ideology in other currently used TRAs. As seen in the results chapter of this dissertation, the ideology domain presented the strongest weighted kappa value indicators. Agreement scores ranged from fair to very good. This consistency in scoring may be explained by the openness of perpetrators to discuss their political views prior to the attack, as well as their alignment with extremist views. This explanation is in line with Capellan's (2015) finding that ideological-active shooters often communicate their plans to likeminded individuals. Ideological affiliation was indicated either by group membership, or through online claims of affiliation (e.g., chatroom posts, social media posts, manifestos). *Ideological world view that condones violent political action* ($k = .721$) was easily assessed by examining the individual's subscription to a particular extremist ideology. *Claims affiliation to an extremist group or cause* ($k = .766$), too, was easy to assess as group membership or claims were often publicly available information. *View that injustices can be addressed through violent means no matter how extreme* ($k = .841$), the indicator with the overall best agreement score across the instrument, was also very clear in meaning. This indicator, like *ideological world view that condones violent political action* was determined by the individual's extremist political alignment.

The only indicator that did not perform well was *view that the public is blind to or enabling injustice* ($k = .325$). The fair agreement on this indicator may be explained by the lack of access to interviews with the perpetrator. When examining the assessment questions (see chapter three), it becomes apparent that the indicator relates to internal processes, difficult to assess through open-source data. Although, sometimes addressed in manifestos, in many cases the information was simply unavailable and internal processes had to be interpreted using circumstantial information.

7.1.9 Interrater Reliability – General Criminality Domain

The ninth and last domain in Corrado's proposed instrument, the general criminality domain, like ideology, also displayed quite consistent results. The weighted kappa scores for indicators in the general criminality domain ranged from moderate to good. Two indicators displaying moderate agreement were *history of gang/criminal organization involvement* ($k = .448$) and *history of violence or threatening behaviour motivated by bias* ($k = .495$). The debriefing session between both raters revealed a common concern about the indicator *history of gang/criminal organization involvement*. First, it was unclear if being a member of a terrorist organization would be relevant to the indicator. Since terrorist organizations are often involved in organized crime for financing purposes, and are, in general, considered serious organized crime syndicates, membership in these groups should technically have meant a high score on the *history of gang/criminal organization involvement* indicator (Paoli et al., 2022). However, it was unclear from the assessment questions whether previous and current involvement in a terrorist organization was important. Both raters agreed that this classification needed to be clarified for future application of the instrument.

Despite having the highest agreement score in the domain, scoring *history of violent behavior* ($k = .690$) posed challenges to both raters. It was discussed that, at times, it was unclear what constituted violent behavior. For instance, in one case the individual had committed theft, but it was unclear from the offence circumstances whether violence was involved (essentially turning the theft into a robbery). Furthermore, sometimes individuals had a history of assault but were not convicted. It was unclear

whether to only consider convictions for violent crimes or also accusations and charges. Moreover, some individuals had committed intimate partner violence. The raters found it difficult to assess whether this violent act was only to be recognized by *history of intimate partner violence* or also as *history of violent criminality*. The same dilemma experienced with *history of violent criminality* was also present in scoring *history of intimate partner violence* ($k = .652$). Knowing that there is a significant number of unreported intimate partner violence (IPV), it was difficult to decide whether to consider accusations of IPV, as well as charges, or just convictions.

History of low-level criminality ($k = .658$) also posed some challenges. The main difficulty in scoring this indicator was the lack of a definition for low-level criminality. For instance, were the raters only to consider summary conviction offenses for this indicator or were hybrid and/or indictable offenses also potentially applicable. Like *history of violent criminality*, more clarity needed to be provided in form of legal boundaries or definitions. Last, *history of violence or threatening behaviour motivated by bias* ($k = .495$) only displayed moderate agreement. *History of violence or threatening behavior motivated by bias*, as an indicator, was very vulnerable to interpretation bias. To score an individual on this indicator, the raters had to rely on their own experience and discretion when deciding what constituted threatening behavior. Here again a definition or boundaries would be helpful.

7.1.10 Interrater Reliability – Concluding Thoughts and Future Directions

Having outlined potential reasons for each indicators weighted kappa value, it seems important to discuss a couple of resulting conclusions and future directions. First, compared to many other interrater reliability studies conducted on TRAs, the weighted kappa values of this reliability assessment were less promising. For instance, Beardsley & Beech (2013) found that VERA-2R displayed good interrater reliability (all kappa values above 0.76). Furthermore, Challacombe & Lucas (2018), when testing the TRAP-18 instrument on a sample of 58 individuals or organizations associated with the Sovereign Citizens movement in the United States, found that the average kappa value for proximal warning behaviors was $k = .687$ and for distal characteristics was $k = .812$

(Challacombe & Lucas, 2018). Another reliability study conducted by Powis et al. (2019) on the ERG22+, displayed kappa scores ranging from $k=0.81-1$. However, the first validation of the MLG in 2014 by Cook resulted in kappa values ranging from poor to excellent. Although, kappa values from this study do not indicate consistent scoring, improvements can be achieved by addressing several concerns. The main issues in scoring can be summarized as: use of open-source data, interpretive nature of many indicators, lack of clarity on inclusion of attack features and ideological aspects, and lack of definitions or boundaries. All four main conclusions are addressed in the next section. Possible remedies and suggestions for future development of the instrument are also explored.

7.1.10.1 The Use of Open-Source Data

As previously discussed, open-source data is often used in the initial stages of validation of a novice terrorism risk assessment instrument. Lack of access due to the sensitive nature of national security data is often a roadblock in validating terrorism risk assessment instruments. As seen in the interrater reliability results, indicators that provided a wealth of open-source information were often accompanied by strong weighted kappa values. However, many indicators could not be fully assessed due the nature of the data and the application of self-report questions. Since this is an exploratory attempt at assessing reliability and validity of Corrado's proposed instrument, open-source data is the only available source. This may cause some doubt in terms of the instrument's potential for being utilized as a structured professional judgement tool in the law enforcement sector. However, it needs to be acknowledged that future steps will include attempts to access more in-depth information. Furthermore, as discussed in chapter three, law enforcement often has much more detailed personal information available, including psychiatric assessments and interview transcripts. As such, although not perfect, open-source validation is sufficient at this exploratory stage.

7.1.10.2 Interpretive Nature of Indicators

As discussed, many indicators left room for interpretation. This undoubtedly led to inconsistent results. Although true across all domains, definitions or legal boundaries would have been very helpful in assisting the scoring of the indicators in the general criminality domain. As such, it is suggested to accompany the instrument not only with assessment questions but clear definitions on all ambiguous indicators. The creation of a codebook should be a future step to provide clearer understanding for raters.

7.1.10.3 Incorporation of Attack Features and Ideology

Although a serious concern when conducting open-source, post-attack scoring, this issue will not appear once the instrument is utilized on radicalized populations in the law enforcement field. However, clarity on the incorporation of attack features will be needed while continuing the exploratory validation of Corrado's proposed instrument using open-source data. Similarly, clarity at the exploratory stage, as well as for future application, needs to be provided regarding how much weight should be placed on ideological belief systems. Furthermore, if ideology was to be considered in the scoring of Corrado's proposed terrorism risk assessment instrument, ideological belief systems would have to be defined. It cannot be expected from those utilizing the instrument to be experts across all ideological streams.

7.2 Risk Assessment Strength Across Ideologies

As discussed in the methodology and results chapters of this dissertation, independent samples t-tests were conducted on different group pairings as part of the exploratory validation of Corrado's proposed instrument. To understand whether terrorism risk assessment instruments can be applied to a multitude of ideologies, Islamist extremists and right-wing extremists were compared. Both groups were scored across the entirety of the instrument. Several indicators displayed statistically significant mean differences between the groups. Those indicators will be discussed in detail in this section of the discussion chapter. In addition, some general findings from the case studies will be discussed, specifically relating to ideology.

7.2.1 Detachment Domain

Two indicators, *depressivity* and *suspiciousness* displayed statistically significant mean differences between Islamist and right-wing extremists. *Depressivity* was accompanied by large effect size of $d = -.998$. The mean difference for *depressivity* was $\bar{x} = .58$. Right-wing extremists were more likely to exhibit this trait. This is a very interesting and surprising finding. Research into depressivity in radicalized populations has often focused on the Islamist extremism/Jihadism stream. This trend has mainly been influenced by the frequent use of suicide bombers in Islamist extremism since the 1980s (Von Hassell, 2009). Researchers have tried to understand what motivates individuals to sacrifice their life for a cause (Abu-Lughod & Montoya; Olechowicz & Matusitz, 2013; Rosenberger, 2003). As discussed in depth, Merari, Diamant, et al. (2009) examined this phenomenon by conducting interviews with would-be suicide bombers. Merari, Diamant, et al. (2009) found Islamist would-be suicide bombers overwhelmingly displayed suicidal, depressed, and dependent-avoidant style traits. Recent media attention, too, has been drawn to the idea that the new generation of suicide bombers may simply desire a "justified" way to commit suicide while participating in mass atrocities (Roy, 2017b). The idea that there is a justified way to commit suicide has been utilized as propaganda by groups such as ISIS. Common slogans like "YODO – you only die once, why not make it martyrdom" clearly address individuals with a desire to commit suicide (Gibbons-Neff, 2014).

Yet, although groups such as ISIS and Al Qaeda proclaim that suicide is justified if committed while engaged in war against *kuffars*, scholars such as Burki (2011) disagree. Burki argues that *Allah*²⁵ is the only one to decide over life and death. By taking one's own life, despite the reason, according to Islam, one takes on the role of *Allah*. This is considered *haram*²⁶ in all circumstances (Burki, 2011). Considering this difference in perspective, the argument that suicidal individuals, forbidden by their religious creed to commit suicide, will seek out groups justifying their death, seems plausible. However, when examining the results of this study, the argument seems to be, at least partially, challenged. The result that right-wing extremists are more likely to experience *depressivity* is very interesting, especially considering that suicide terrorism in the right-wing extremist spectrum is uncommon.

The other indicator displaying statistically significant mean differences between the two groups in the detachment domain was *suspiciousness*. This indicator displayed a large effect size of $d = -1.465$. Whereas *depressivity* was an unusual finding, the overwhelming prevalence of *suspiciousness* in right-wing extremists is not surprising. Right-wing extreme ideology is largely based on a variety of conspiracy theories. As addressed in the interrater reliability discussion, ZOG has been a staple in right-wing ideology (Bjorgo, 1993). Furthermore, events such as Ruby Ridge and Waco have increased anti-government paranoia in many of those subscribing to right-wing ideology (Hamm, 1997). QAnon, as discussed, has been one of the newest developments in the right-wing conspiracy world (Moskalenko & McCauley, 2021). Considering the importance alternative thinking or conspiracy plays in right-wing ideology, a high *suspiciousness* score was to be expected.

7.2.2 Negative Affectivity Domain

Negative affectivity, unlike the previous domain, only contained one indicator displaying statistically significant mean differences between the two sample groups. *Hostility* was more present in the right-wing extremist sample. *Hostility* indicated a large

²⁵ *Allah* – Arabic word referring to God (Burki, 2011)

²⁶ *Haram* – religiously forbidden (Burki, 2011)

effect size ($d = -1.040$). This finding is in line with current research on right-wing extremism (Bussmann & Werle, 2004; McGowan, 2014; Windisch et al., 2018). *Hostility* as an indicator addresses personality features such as hatred towards others, and lack of acceptance of opposing opinions. Historically many right-wing movements have utilized extreme aggression and violence to achieve their goals of White supremacy. Examples range from the horrific crimes against humanity witnessed during the Third Reich, to lynchings committed by the Ku Klux Klan in North America (Aaronson, 2014; Schafft, 2004).

This extreme violence is often rooted in hatred, and the idea that White people are supreme. The idea of supremacy, in the right-wing context, essentially dehumanizes others. Windisch et al. (2018) call this process “deindividuation”. According to Windisch et al. (2018):

Deindividuation refers to a psychological state in which inner restraints are lost when individuals are not seen or paid attention to as individuals (Festinger et al., 1952).” Based on this perspective, humans naturally act in a rational, orderly, constrained manner and seek to inhibit socially unacceptable desires. For violence to occur; however, individuals must suppress these constraints through a process of deindividuation (p. 24).

Although also seen in other ideologies, the process of deindividuation seems key to the history of violence in the right-wing movement. Deindividuation seemingly plays a large part in why *hostility* is a strong risk factor for right-wing extremists.

Hatred towards others is a hallmark of right-wing ideology. Although, historically mainly focused on Jews or African Americans, right-wing movements in the US have more recently expanded their hatred towards everything that challenges their belief system. Groups such as Proud Boys have mainly focused their hate on women and Muslims (Stern, 2019). Incel members, too, have found comradery in their hate for women (Sugiura, 2021). Last, QAnon subscribers target their hate towards politicians, businesspeople, and celebrities (Moskalenko & McCauley, 2021). The opposition towards everything that challenges the belief system is manifested in right-wing vulnerability for conspiracy theories also referred to as “alternative facts”. In Germany, recent uprisings of the right-wing spectrum of society have led to a targeting of media

outlets. *The Spiegel* newspaper has been at the forefront of documenting the uprisings, as well as questioning the theories presented by neo-Nazis, QAnon followers, and the Querdenker (lateral thinkers)²⁷ movement (Fuerstenau, 2021; Maxwill, 2019). As a result, Spiegel reporters have been threatened, targeted, and have been coined as “Luegenpresse”, literally translating to “lying press” (Maxwill, 2019). This development clearly displays the rejection of mainstream media as a legitimate source of information. Considering these facts, it seems plausible that both *emotional dysregulation* and *hostility* are more prevalent in the right-wing sample of this study.

7.2.3 Antagonism Domain

The antagonism domain included one indicator that displayed a statistically significant mean difference between Islamist and right-wing extremists. *Grandiose* displayed a mean of $\bar{x} = 1.97$ in right-wing extremists, and $\bar{x} = .35$ in Islamist extremists. This mean difference was supported by an effect size of $d = -2.766$. The *grandiose* indicator emphasizes a sense of uniqueness, and superiority. Having discussed the themes of White supremacy, the idea of “Untermenschen”, and deindividuation, it is unsurprising that this indicator seems very relevant to right-wing personality profiles (Schafft, 2004; Windisch et al., 2018). A sense of superiority is one aspect of the *grandiose* indicator, another is a sense of uniqueness and entitlement. This sense of uniqueness is perfectly portrayed when examining the history of the Ku Klux Klan and its relationship to Christianity.

Incorporation of religion in the Klan’s ideology only began with the second generation in 1915. The Klan realized the power they could have by spreading their ideology through the protestant church system (Forsell, 2020; Southern Poverty Law Center, n.d.). By the 1920s, the Klan had reached a membership of five million with many protestant churches openly declaring affiliation with the Klan. Klan members

²⁷ Querdenker (lateral thinkers) – movement of German Covid-19 pandemic skeptics, anti-vaccination and anti-lockdown protesters, who perceive public health measures as infringements on their civil liberties (Fuerstenau, 2021)

believed that the bible was the family history of the White race and as such they believed to be morally and spiritually superior. In essence, the Klan claims that the White race, in the eyes of God, is the chosen race (Forsell, 2020; Southern Poverty Law Center, n.d.). The sense of uniqueness and entitlement is also present when examining the ideology/theory of Aryanism. First introduced by one of the forefathers of racism, Arthur de Gobineau, Aryanism refers to the idea that White races, especially Germanic people, constitute the peak of racial supremacy (Tyson, 2016). As such, they are entitled to rule the entire world. Aryanism, although present in theory, was first practically applied in the Third Reich. However, the ideology of Aryanism has survived the fall of the Third Reich and is still existent in today's right-wing landscape. US hate groups such as the Aryan Nations, Aryan Brotherhood, Aryan Nationalist Alliance, and the Aryan Renaissance Society are all united by the belief in racial supremacy (Balleck, 2019).

7.2.4 Psychoticism Domain

The psychoticism domain, too, included one indicator displaying statistically significant mean differences between right-wing and Islamist extremists. *Eccentricity* when scored resulted in a mean of $\bar{x} = .84$ in the right-wing sample and $\bar{x} = .04$ in the Islamist extremist sample. This finding was accompanied by a large effect size of $d = -1.596$. *Eccentricity* being statistically more significant for right-wing extremists is in line with the previously discussed results. This indicator emphasizes the subscription to conspiracy theories and contrarian ideas. As discussed above, these two features create the foundation for right-wing extremist thinking.

7.2.5 Ideology Domain

Although none of the indicators in the ideology domain displayed statistically significant mean differences between both groups, clear differences between Islamist extremists and right-wing extremists regarding the scope of political agenda became apparent from reviewing the case files. Even though not captured by the indicators of Corrado's instrument, it was decided to still discuss this key feature that emerged from the examination of these two ideological threat profiles. A key difference found when

examining the Islamist extremists was that their ideological motivation was rooted in a global agenda rather than a regional or national struggle. The strive towards a global Jihad or a global Caliphate has long been a priority of larger organizations such as Al Qaeda and ISIS (Mahood & Rane, 2017). For instance, whereas right-wing extremist groups have often operated in decentralized cells, Al Qaeda and ISIS have established a franchise system connecting with many terrorist organizations across the globe in the hopes of waging a global Jihad (Mahood & Rane, 2017). Hence, those that are attracted to current Jihadist ideology, often believe that they are a small puzzle piece in the global strive for the establishment of a Caliphate (Mahood & Rane, 2017).

Whereas cooperation and centralization have been a feature of larger Jihadist organization such as Al Qaeda since the age of the Mujahideen, right-wing extremism is often characterized by a multitude of different organization, movements, gangs, or cells with a variety of grievances or goals (Mahood & Rane, 2017). The decentralization and uniqueness of each movement in the right-wing landscape is often witnessed when larger events assemble the groups. In the US events such as the Unite for the Right rally in Charlottesville in 2017, or the storming of the Capitol in 2021, display the variety of goals and interests represented in the right-wing scene. For instance, the Unite for the Right rally brought together neo-Confederates, Proud Boys, white supremacists, neo-fascists, neo-Nazis, and the Ku Klux Klan (Reeve, 2017). This diversity is also witnessed when examining recent protests in Germany against Covid-19 pandemic regulations. These protests have united neo-Nazis, QAnon followers, Reichsbuerger (Citizens of the Reich)²⁸, and Querdenker movement members (Dick, 2018; Fuerstenau, 2021; Maxwell, 2019). Considering the multitude of grievances and goals represented by what is understood as the right-wing spectrum, it seems plausible that there is less of an emphasis on a global world view and more of a focus on a national strategy.

²⁸ Reichsbuerger (Citizens of the Reich) – Group of German right-wing extremists who reject the legal authority of the German government and believe the 1937 borders of the German Empire still exist (Dick, 2018).

7.2.6 Risk Assessment Strength Across Ideologies – Concluding Thoughts and Future Directions

Having discussed all statistically significant mean differences and possible explanations for these findings, as well as some general observations regarding ideology, conclusions need to be drawn on whether it is possible to utilize Corrado's proposed terrorism risk assessment instrument on a multitude of threat profiles. When examining the findings, it becomes apparent that most of the indicators displaying a difference in personality profiles of the two groups relate to aggression and hatred towards others, a belief in racial supremacy, and an adherence to contrarian thoughts or conspiracy theories. All these findings are plausible when taking a deeper look at the features and premises underlying right-wing ideology. One more surprising finding from this study is that *depressivity* is more common in the right-wing sample than the Islamist extremist group. This is a yet to be explored area of research and these findings suggest that it is a research avenue worth pursuing.

Considering all the findings collected and discussed, it is believed that Corrado's proposed terrorism risk assessment instrument can be utilized across ideologies given slight modifications. Indeed, five indicators (12 percent) of the instrument suggested statistically significant mean differences between Islamist extremists and right-wing extremists. Yet, most of these indicators relate to common concepts such as a feeling of supremacy and hatred towards others. As such it seems like dividing the instrument into risk pathways, rather than constructing a completely separate instrument, may be a solution. For instance, future modification of the instrument could place emphasis on some more ideologically specific domains. For right-wing extremists these domains should revolve around the idea of uniqueness or supremacy, and for Islamist extremists the global aspect of their ideology should be emphasized. One main reasoning behind countries like Germany creating instruments such as RADAR-rechts, is the idea that right-wing extremists have a more extensive history of and propensity for violence (Bundeskriminalamt, n.d.). Although, *hostility* did confirm the latter, there were no statistically significant mean differences found in the general criminality domain. Hence, it seems from these study results, that there is not enough empirical evidence to suggest significant differences in violent behavior justifying criminal conviction. As such, the need for the creation of ideologically categorized terrorism risk assessment instruments, as

argued by German national security services, is not confirmed by the findings presented in this dissertation (Bundeskriminalamt, n.d.).

7.3 Personality Profile Differences between Group-Based and Lone Actor Terrorists

As previously discussed, this part of the validation study was conducted, not only to assess personality profile differences and similarities in group-based and lone actor terrorists, but also to determine whether the fourth part of this study, comparing terrorist and mass shooter profiles, should be using the entire terrorist sample, or focusing on lone actors only. Although mainly conducted for methodological decision-making purposes, findings from this part of the study may also inform future research into differing terrorist typologies, as well as provide a basis for terrorism risk assessment instrument construction. Like in the previous section of the discussion chapter, indicators displaying statistically significant mean differences between group-based and lone actor terrorists will be discussed by domain, beginning with the detachment domain.

7.3.1 Detachment Domain

As outlined in the results chapter of this dissertation, three indicators in the detachment domain displayed statistically significant mean differences between both groups. *Withdrawal* ($d = -.526$), *depressivity* ($d = -.536$), and *anhedonia* ($d = -.596$) all presented with medium effect sizes. Furthermore, all three indicators were more present in the lone actor sample than the group-based terrorists. As discussed previously, *withdrawal* relates to a process of withdrawing from family and peers. Often observed and reported by family and friends themselves, individuals change their opinions and lifestyle rapidly. In the Islamist extremist stream, withdrawal of individuals from their families and friends, is one of the first steps in the radicalization process (Moghaddam, 2005). Recruiters encourage distancing from family and friends that do not support the cause. In Islamist radicalization, everyone unsupportive of the cause is deemed a *kuffar*. Recruiters implement the idea that family and friends are unworthy and encourage

emotional and physical separation (Callimachi, 2015). Merari, Fighel, et al. (2009) examined the role family support or opposition played in the recruitment of suicide terrorists. According to interviews conducted with organizers of suicide bombings, individuals who had family members opposing the operation were immediately dismissed. As such, family attitude towards the extremist cause was identified as both a risk, as well as a protective factor (Merari, Fighel, et al., 2009). Furthermore terrorist groups such as Hamas intentionally keep suicide bombers distanced from their family and peers weeks before the attack in order to prevent counterproductive family and peer influence (Merari, 2010). Considering these findings, *withdrawal* from moderate family members and friends seems to often be encouraged by recruiters. Hence, it seems to be an important risk factor that should be included in risk assessment instruments. However sometimes connection to family members and peers is considered a radicalization risk factor. For instance, McCauley & Moskalenko (2011) emphasize the importance of “love” as a risk factor in radicalization. According to McCauley & Moskalenko (2011), *“love for someone already radicalized can move an individual toward radicalization (p. 49).”*

The identification of love as a risk factor, has also been confirmed by empirical data. In 2015, the German Federal Police, the Federal Domestic Intelligence Service, and the Hessian Centre of Information and Expertise on Extremism conducted a study on foreign fighters. The study examined 677 cases of foreign fighters travelling from Germany to Iraq or Syria. The study explored motivations for travel, affiliations with militant groups, and radicalization factors (e.g., peer groups, affiliation with extremist groups, internet radicalization) (Bundeskriminalamt, Bundesamt für Verfassungsschutz, & Hessisches Informations- und Kompetenzzentrum gegen Extremismus, 2015). Other variables examined were individual backgrounds and socioeconomic circumstances. Factors considered were family ties, employment, academic achievement, and socioeconomic conditions. In addition, the study compared the first generation of foreign fighters (mostly travelling to Pakistan, Afghanistan and the earliest foreign fighters to Syria and Iraq) and the second generation. The second generation was defined as those individuals that had left Germany after the proclamation of an Islamic Caliphate (Bundeskriminalamt, Bundesamt für Verfassungsschutz, & Hessisches Informations- und Kompetenzzentrum gegen Extremismus, 2015).

The study also looked at gender specific differences in radicalization patterns, motivations, and affiliations. The results of the study revealed that 33 percent of the sample were radicalized through peers. Furthermore, study results displayed that 49 percent of foreign fighters left the country with friends, and 32 percent with family members. Gender-specific results further confirmed the significance of family ties and intimate relationships. The study showed that 21 percent of the sample were female. Out of those 21 percent, 16 percent stated that they had followed their spouse to the conflict zone. Furthermore, 53 percent of the female sample were found to have travelled to Syria or Iraq with a family member (Bundeskriminalamt, Bundesamt für Verfassungsschutz, & Hessisches Informations- und Kompetenzzentrum gegen Extremismus, 2015).

Considering the importance of family and peer ties in radicalization it is unsurprising that *withdrawal* seems to be an integral part of risk assessment. However, to account for both the risk and protective aspect of family and peers, it is suggested that Corrado's proposed terrorism risk assessment instrument includes an indicator relating to established ties with already radicalized peers and family members. This recommendation is not only based on the discussed empirical evidence, but relations to radicalized family members was a factor that also appeared frequently in the reviewed case files. The VERA-2R instrument also includes an indicator relating to this subject matter (Pressman et al., 2017). The discussion on the protective and risky nature of family and peer ties may also explain why *withdrawal* seems to be more present in the lone actor sample. Since many lone actors are radicalized online, not through family and friends, the likelihood of being surrounded by already radicalized individuals is lower. As such, online propaganda against *kuffars* may emphasize the need to distance oneself completely.

Depressivity, too, was more represented in the lone actor sample. As discussed previously, more recent media attention has focused on a new generation of Jihadis which seem to be more attracted to the aspect of suicide and mass murder than the actual cause (Roy, 2017b). Considering that lone actor terrorism is a fairly recent development, the study results likely confirm the assumption that new recruits mainly focus on the suicidal outcome of the attack. *Anhedonia* was another indicator more prevalent in the lone actor sample. *Anhedonia* refers to a feeling of emptiness and

worthlessness. Researchers have found that a sense of purpose and brotherhood is an important factor in the radicalization process (Callimachi, 2015; Rosefsky-Wickham, 2002). Brotherhood does not necessarily need to be experienced physically. A sense of belonging can also be achieved through a virtual community. In fact, research has identified that individuals expressing interest in extremist causes online are often initially “love bombed” (Bloom, 2019; Callimachi, 2015). Love bombing refers to a process in which an individual receives an extensive amount of popularity and admiration for expressing interest in an extremist ideology. The mechanism of love bombing is used by recruiters to establish an emotional dependency that can only be fulfilled in the extremist community. Individuals who lack emotional support in the outside world are often targeted by terrorist recruiters (Bloom, 2019).

7.3.2 Cognitive Domain

Two indicators in the cognitive domain displayed statistically significant mean differences between group-based and lone actor terrorists. Although prevalent in both sample groups, *intolerance* and *planfulness (or lack of)* were more common amongst group-based terrorists. While *intolerance* projected a large effect size of $d = .834$, *planfulness (or lack of)* only displayed a medium effect size of $d = .558$. *Intolerance* relates to a feeling of supremacy and hate toward others considered less. A possible explanation for why these two indicators were more common amongst group-based terrorists could be that group-based terrorists are likely more committed to the cause and as such display more organizational/planning behavior. Being part of a terrorist organization requires a firm commitment towards the means and goals of the group. As such, a high prevalence of intolerance seems expected. For instance, as a full-fledged member of ISIS you must be in agreement with the means used by the group, which often include extreme forms of violence (e.g., beheadings).

Lone actors do not necessarily have to commit to the cause to the same degree. Oftentimes radicalization of lone actors is swift, which may not even allow for extensive development of a fundamentally extremist world view, as well as in-depth planning. Furthermore, as discussed media attention has been placed on the new generation of Jihadis, which supposedly are less committed to the cause (Roy, 2017b). Less attention

to the cause can also be inferred when examining recent online propaganda produced by ISIS. One example is ISIS' emphasis on First Person Shooter (FPS) games. One infamous propaganda strategy has focused on the video game "Call of Duty". ISIS has released multiple propaganda posters relating to this particular game, most infamously using the slogan "This is our Call of Duty and we respawn in Jannah" (Dauber et al., 2019). The extensive use of video game propaganda displays a need to attract individuals through more than just ideology and cause. This suggests that instead of placing emphasis on intolerance and planfulness, lone actors are recruited through the promise of excitement and almost immediate real-life combat. As Byman & Shapiro (2014) discuss, this expectation has often led to disillusionment in foreign fighters experiencing the Syrian civil war.

7.3.3 Ideology Domain

The last domain that suggested statistically significant mean differences across its indicators was ideology. In this domain, two out of four indicators proposed variance between group-based and lone actor terrorists. The first indicator displaying statistically significant means differences between the two groups was *ideological world view that condones violent political action*. The effect size for this indicator was large ($d = .835$). Although relevant to both groups, this indicator had a larger mean size amongst group-based terrorists. This finding is aligned with the previous discussion on *intolerance and planfulness (or lack of)*. As explained, ideology seems to have become less important to the newer generation of recruits. Commitment requirements seem less stringent. This trend is both indicated by case studies, as well as propaganda and recruitment efforts on behalf of ISIS and Al Qaeda (Dauber et al, 2019; Roy, 2017b).

The most interesting finding in the domain is the difference in mean sizes on the *view that the public is blind to or enabling injustice* indicator. Unlike the previous indicator, *view that the public is blind to or enabling injustice* is more common among lone actor terrorists. This finding is supported by a medium effect size of $d = -.570$. The idea that the public is blind to or enabling injustice is at the core of many conspiracy theories. One potential reason for a larger presence of this indicator in the lone actor

sample may be the technological advances of the internet, including social media. Although conspiracy theories have always been a part of extremist ideology and movements, the advancement in technology has increased the spread of contrarian thoughts. Whereas before, an individual needed to have a one-on-one conversation about their contrarian thoughts, nowadays, they can easily spread these ideas on the internet through social media, and/or platforms and find likeminded individuals. One example discussed previously is the QAnon movement. The QAnon conspiracy theories were developed through a post on a notorious message board called *4chan*²⁹. An author identifying themselves as “Q Clearance Patriot” claimed to be a high-ranking government insider. “Q” revealed that the world is run by a satanic pedophile trafficking ring. What started as a post on an internet message board, resulted in a global political opposition movement. The example of QAnon shows the power that the internet has in reaching millions of people, including those vulnerable to contrarian thought ideas (Roose, 2021). Considering previous themes discussed such as the broader access to conspiracy theories through online dispersion, it seems plausible that thoughts relating to the indicator *view that the public is blind to or enabling injustice* would also find a wider audience among the online community and consequently among often younger lone actors.

7.3.4 Personality Profile Differences between Group-Based and Lone Actor Terrorists – Concluding Thoughts and Future Directions

As outlined at the beginning of this section, the comparison between group-based and lone actor terrorists was predominantly done for methodological purposes. However, by examining and discussing the results a multitude of personality profile differences were discovered. For instance, lone actors seemed more susceptible to family and peer ties. Furthermore, they also displayed more *anhedonia* leading to the conclusion that lone actors sought a sense of meaning and a feeling of belonging. Another important difference discovered was the shift in importance placed ideology and cause. Rather than being fully committed to one cause or ideology, lone actors seemed more susceptible to a variety of conspiracy theories. This tendency was further

²⁹ *4chan* – Imageboard website offering anonymous messaging and threads (Dewey, 2014)

supported by the predominance of *view that the public is blind to or enabling injustice* among the lone actors. Not only did all these differences underpin the methodological decision to compare lone actors (rather than the entire terrorist sample) and mass shooters in the next step of this validation study, but it also led to the conclusion that lone actors, indeed, possess personality profiles unlike any other terrorist typology. For instance, seven (17 percent) out of the 41 indicators of the instrument displayed statistically significant mean differences. Although not substantially more than in the previous validation step, the differences were found not only in areas relating to political ideology but also to commitment and detachment. Considering the structured professional judgement nature of Corrado's instrument (allowing discretion based on the expertise of the assessor), it is concluded that differences between these two terrorist typologies are large and varied enough to suggest separate risk assessment. Since it is the primary goal of this research to validate a terrorism risk assessment instrument aimed at lone actors, further exploration of risk factors aiding in the construction of a TRA for group-based offenders is beyond the scope of this dissertation.

7.4 Personality Profile Differences between Mass Shooters and Lone Actor Terrorists

Having established that lone actors feature a number of personality traits distinct from other terrorist typologies, it was decided to move forward with a direct comparison of lone actor terrorists and mass shooters. Not only was this decision based on findings from this study, but it was also aligned with current trends in research (Lankford, 2012). The aim of this part of the validation study was to assess Corrado's argument that lone actors possess personality profiles unlike any other offender grouping (Corrado & Doering, 2021). This assertion has been challenged by recent research conducted on profile comparisons of terrorists and mass shooters (e.g., Capellan, 2015, Horgan et al. , 2016; Lankford, 2012; Liem et al. , 2018). Although, research conducted has confirmed many profile similarities between the groups, there has been a lack of focus on personality disorder and traits. Like in previous sections of the discussion chapter, statistically significant indicators are presented and discussed by domain.

7.4.1 Detachment Domain

The detachment domain included one indicator, *withdrawal* which portrayed a statistically higher mean in the lone actor sample. This result was accompanied by a large effect size of $d = .900$. As discussed previously, *withdrawal* relates to the process of loosening ties with family and friends. As outlined in previous parts of this validation study *withdrawal* from prosocial connections has been deemed a risk factor in many different terrorist typologies. This has been recognized both by terrorist organizations, as well as those trying to assess risk in radicalized populations (Lloyd, 2019; Merari, 2010). Although the process of *withdrawal* was not as prevalent in the mass shooter sample, another personality feature related to *withdrawal* was commonly alluded to in the reviewed case files.

Several mass shooters were identified as having socialization difficulty from an early age. Parents in multiple cases reviewed, discussed their struggle of getting their children to talk and/or socialize. Some of the parents sought psychiatric help for their children. Although only describing symptoms and not providing diagnoses, descriptions from parents lend reason to believe that some of the mass shooters suffered from social anxiety and possibly even selective mutism. Selective mutism is a rare childhood disorder that is characterized by children being able to speak in certain social settings but not in others (Cengher et al., 2021; Muris & Ollendick, 2021; Steffenburg et al., 2018.; Suzuki et al., 2020). Furthermore, some of the mass shooter cases also featured diagnosed autism spectrum disorder. Recent research has suggested a potential comorbidity between both disorders (Cengher et al., 2021; Muris & Ollendick, 2021; Steffenburg et al., 2018.; Suzuki et al., 2020). Considering the findings from the case files, it may be suggested that when assessing risk for mass shooters, an indicator relating to the above discussed theme is added.

7.4.2 Negative Affectivity Domain

The negative affectivity domain included one indicator displaying statistically significant mean differences between lone actors and mass shooters. *Emotional dysregulation* was more widespread in the mass shooter sample. *Emotional dysregulation* displayed a large effect size of $d = -1.273$. *Emotional dysregulation* relates to unprovoked aggressive outbursts, aggressive outbursts towards others, and the threat to harm oneself. When examining the case files of mass shooters, it became apparent that these features were commonly witnessed prior to the attack. *Emotional dysregulation* led some individuals to be expelled from school. Furthermore, *emotional dysregulation* was especially apparent in workplace shooters. Coworkers/former coworkers and supervisors often referred to previous outbursts that had either led to termination, temporary suspension, or warnings. Considering this common trend among two of the mass shooter typologies, workplace and school shooters, it seems unsurprising that this indicator displayed a very high mean across the sample.

7.4.3 Ideology Domain (Partial)

The last domain to include indicators with statistically significant mean differences was ideology. As discussed in previous sections, it was decided to adopt a partial ideology domain, as two indicators seemed theoretically relevant to both samples. As seen in the results section, mass shooters displayed small mean sizes for *claims affiliation to an extremist group or cause* ($\bar{x} = .40$) and *view that injustices can be addressed through violent means no matter how extreme* ($\bar{x} = .17$). Although small, the presence of a mean above zero confirms the choice to include these indicators in the study. The finding that both indicators were more prevalent in the lone actor terrorist sample is unsurprising. The nature of the offender groups explains the difference in mean sizes. Yet, it seems relevant to note that some mass shooters, although not inspired by political extremist ideology, claimed affiliation to an extremist group or cause. This finding may suggest that both offender groups exhibit a vulnerability toward extremist radicalization and as such it is recommended that risk assessment for mass shooters places emphasis on attraction towards extremist causes. Furthermore, it may

also suggest a blurring of lines between mass shootings and lone actor terrorist attacks. This potential blur might be explained by the decrease in importance of ideology and an increasing emphasis on violence and excitement in online radicalization (Dauber et al., 2019; Roy, 2017b). Moreover, the presence of a mean above zero on the indicator *view that injustices can be addressed through violent means no matter how extreme* for mass shooters was also confirmed by the case files. The use extreme violence was discovered in several cases. For instance, one workplace shooter sat in an employee meeting for an extended period before brutally killing every co-worker in sight. Although not included in this study's sample, survivors of the Columbine shooting in 1999 have reported on the violent nature of the shooters (The New York Times, 2015). Langman (2009) studied cases of school shooters in depth. As part of the study, both Columbine shooters were examined. According to Langman (2009), one of the shooters had extensive plans of committing extreme violence in his journals. This extreme violence included sexual assault, and indiscriminate mass murder.

7.4.4 Personality Profile Differences between Mass Shooters and Lone Actor Terrorists – Concluding Thoughts and Future Directions

Overall, the results of this study are largely aligned with other research conducted on profiles of terrorists and mass shooters. Although mostly similarly scored across the indicators, some differences were found. Four (10.3 percent) out of 39 indicators displayed statistically significant mean differences. These differences were found in radicalization-related process indicators (e.g., *withdrawal*), *emotional dysregulation*, and ideological indicators. Considering that only two indicators relating to personality traits displayed statistically significant mean differences, it is concluded that Corrado's instrument could be utilized to assess risk in mass shooters, as well as lone actors. Even though risk assessment for mass shooters has long been considered even more challenging than terrorism risk assessment, there is hope that the results of this study will inform future research (Federal Bureau of Investigations, 2022). Last, this study's findings suggest not to disregard connection to or interest in extremist causes when assessing risk in mass shooters.

Chapter 8.

Limitations

Although the discussed results are telling, this study suffered from a few limitations worth addressing. The biggest challenge most researchers face in the realm of national security is access to government data. This, too, was true for the current study. Due to a lack of access to government files, Corrado's proposed DSM-5 PID-based terrorism risk assessment instrument had to be validated using open-source data. Even though in line with other terrorism risk assessment validation studies conducted, utilizing open-source data poses several challenges (Lloyd, 2019). First, using open-source data limits the amount of information that can be accessed and as such prevents researchers from establishing a full profile of each case. For instance, some cases were simply too publicized, resulting in large variance of information across media sources. Other cases provided limited information on the personality of the individual. As such, some indicators had to be treated as non-existent. Having access to government data or being able to interview radicalized individuals would surely have led to more accurate findings. Yet, as discussed throughout this dissertation, although using open-source data is not perfect, it is often the only option in conducting an exploratory validation assessment of terrorism risk assessment instruments (Lloyd, 2019).

A second limitation that needs to be addressed is the number of raters utilized for the interrater reliability part of the study. Use of a larger number of raters, surely would have provided more insight into the consistency of the instrument. Considering that this was an exploratory study, future research on the instrument should include more raters. Another noteworthy limitation is the generalizability of the findings. Although the sample size was quite large (N = 154), compared to other studies (e.g., Beardsley & Beech, 2013), the cases chosen may not be representative of all individuals engaging in terrorism. Furthermore, since this study only explored terrorists and mass shooters operating in Western liberal democracies, the findings will likely not be reflective of other political contexts such as countries actively in state of conflict. Moreover, validating the instrument without a codebook presented a noteworthy limitation. A last limitation worth discussing relates to the assessment of ideologically categorized risk assessment. As

discussed in the methodology chapter of this dissertation, only right-wing extremism and Islamist extremism could be compared. Although, these two streams have become the predominant terrorist threats, other extremist pathways such as single-issue ideologies should be explored. Considering the current political climate in the United States, taking a closer look at personality profiles of Christian fundamentalist/anti-abortion terrorists could be a potential avenue of future research (Cohen & Connon, 2015).

Chapter 9.

Future Research Directions – Restructuring of the DSM-5 PID-Based Terrorism Risk Assessment Instrument

As discussed in the methodology chapter in detail, the last step in this dissertation study was to assess the currently proposed DSM-5 PID-based instrument for theoretical and statistical soundness. An initial correlation matrix was run using SPSS Statistics to identify inter-item correlations. A review of the correlation matrix revealed that several domain indicators did not seem statistically related to one another. This led to the utilization of an exploratory factor analysis, again conducted in the SPSS Statistics program. The factor analysis incorporated all 41 indicators of Corrado's proposed instrument. The factor analysis resulted in 15 different factors which were created based on statistical soundness of the indicators (see Appendix – highlighted factors). When reviewing the 15 factors the program had created, it became apparent that some pairings, although statistically plausible, did not align from a theoretical standpoint. Considering there was significant discrepancy between statistical and theoretical soundness, it was decided to engage in a series of independent confirmatory/forced factor analyses (based on the 15 factors initially created).

After completion of this process, 13 new theoretically and statistically sound domains were created. Statistical soundness was assessed by examining the percentage of variance. All percentages above 50 were considered good. Indicators not assigned to any of the 13 domains were placed in an additional indicator domain (modeled after the VERA-2R instrument) (Pressman et al., 2017). New titles for domains were assigned where necessary and a global score of the sum of all indicators was created for the restructured instrument. Although exploratory at this stage, the restructuring of Corrado's instrument domains and indicators may provide guidance for future research and instrument construction.

9.1. New Proposed Domains for Corrado’s DSM-5 PID-Based Terrorism Risk Assessment Instrument

This section of chapter nine outlines the newly created domains, as well as additional indicators. Tables 65 to 78 outline the statistical strength of the newly created domains. Each domain will be presented in an individual section accompanied by a theoretical discussion.

9.1.1 New Domain 1 – Extremist Belief System

Domain	Indicator	Component I	Percentage of Variance
Extremist Belief System	Intolerance	.855	62.795
	Ideological world view that condones violent political action	.822	
	Inflexible	.814	
	Claims affiliation to an extremist group or cause	.665	

Table 65 – New domain 1 – Extremist belief system

The first new domain, as outlined in Table 65, is the extremist belief system domain. The extremist belief system domain combines four of Corrado’s original indicators *intolerance*, *ideological world view that condones violent political action*, *inflexible*, and *claims affiliation to an extremist group or cause*. The percentage of variance was 62.795 which suggested a statistically strong correlation between the indicators. All four indicators fall into the category of extremist belief systems as they relate to a sense of supremacy, inflexibility in opinions/rejection of opposing opinions, and an ideological world view extremist in nature.

9.1.2 New Domain 2 – Detachment

Domain	Indicator	Component I	Percentage of Variance
Detachment	Anhedonia	.900	64.038
	Withdrawal	.860	
	Intimacy avoidance	.610	

Table 66 – New domain 2 – Detachment

The second newly created domain combines *anhedonia*, *withdrawal*, and *intimacy avoidance*. Since these were originally grouped in the detachment domain, there was no need for defining the correlation differently. The percentage of variance, 64.038 suggested a strong statistical domain. It is recommended to expand this domain by including more relevant indicators.

9.1.3 New Domain 3 – Unusual Thought Patterns

Domain	Indicator	Component I	Percentage of Variance
Unusual Thought Patterns	Eccentricity	.818	58.782
	Suspiciousness	.776	
	Grandiose	.701	

Table 67 – New domain 3 – Unusual thought patterns

The third created domain relates to unusual thought patterns. As seen in the discussion chapter of this dissertation, *eccentricity*, *suspiciousness*, and *grandiosity* often interplayed with one another. A sense of supremacy and hatred towards others, unfounded paranoia, and a belief in conspiracy theories are all features of these indicators. As such, it was decided to group them under the common theme of unusual thought patterns. As seen by the percentage of variance, 58.782, this domain, too, was considered statistically sound.

9.1.4 New Domain 4 – Ideological/Identity-Based Criminality

Domain	Indicator	Component I	Percentage of Variance
Ideological/Identity-Based Criminality	History of violence or threatening behaviour motivated by bias	.835	69.699
	History of gang/criminal organization involvement	.835	

Table 68 – New domain 4 – Ideological/identity-based criminality

The next two indicators that were statistically grouped are *history of violence or threatening behaviour motivated by bias* and *history of gang/criminal organization involvement*. It was decided that both indicators should be grouped under ideological/identity-based criminality. The percentage of variance for this domain, 69.699, suggested a very strong statistical basis. It is suggested to examine the discussion relating to interrater reliability results of the general criminality domain to further add to ideological/identity-based criminality.

9.1.5 New Domain 5 – Psychoticism

Domain	Indicator	Component I	Percentage of Variance
Psychoticism	Perceptual dysregulation	.867	75.231
	Unusual beliefs & experiences	.867	

Table 69 – New domain 5 – Psychoticism

The fifth newly created domain combined *perceptual dysregulation* and *unusual beliefs & experiences*. Since these two indicators were previously grouped in the psychoticism domain, there was no need for defining the correlation differently. The percentage of variance, 75.231 suggested a very strong statistical basis.

9.1.6 New Domain 6 – Boldness (Triarchic Model of Psychopathy)³⁰

Domain	Indicator	Component I	Percentage of Variance
Boldness (Triarchic Model of Psychopathy)	Manipulative	.819	57.524
	Deceitful	.810	
	Risk taking	.632	

Table 70 – New domain 6 – Boldness (Triarchic Model of Psychopathy)

The next domain created includes two indicators from the antagonism domain (*manipulative* and *deceitful*) and one indicator from the disinhibition domain (*risk taking*). At first glance it became clear that these three personality traits are reflected in the Anti-Social Personality Disorder (ASPD). However, ASPD also includes disregard for other people’s wellbeing and feelings, irritability, irresponsibility, lack of remorse, and impulsivity (American Psychiatric Association, 2013). Due to the missing traits, a full ASPD domain could not be established. To still group the three indicators together according to their correlations, models of psychopathy were reviewed. The triarchic model of psychopathy finds its roots in psychopathy literature and neurobiology. Patrick & Drislane (2015) argue that psychopathy consists of three distinct but overlapping symptomatic (phenotypic) constructs: disinhibition, boldness, and meanness. According to Patrick & Drislane (2015):

Disinhibition entails impulsiveness, weak restraint, hostility and mistrust, and difficulties in regulating emotion. *Meanness* entails deficient empathy, lack of affiliative capacity, contempt toward others, predatory exploitativeness, and empowerment through cruelty or destructiveness. The third construct in the triarchic model, *boldness*, entails proclivities toward confidence and social assertiveness, emotional resiliency, and venturesomeness (p. 628).

Examining the triarchic model’s constructs, it became apparent that all three indicators, *manipulative*, *deceitful*, and *risk taking* fall into the boldness category. Not

³⁰ Patrick, C.J. & Drislane, L. E. (2015). Triarchic Model of Psychopathy: Origins, Operationalizations, and Observed Linkages with Personality and General Psychopathology. *Journal of Personality*, 83(6), 627–643. <https://doi.org/10.1111/jopy.12119>

only was the new domain theoretically aligned, but it also displayed a strong statistical basis with a percentage of variance of 57.524.

9.1.7 New Domain 7 – Social Rigidity

Domain	Indicator	Component I	Percentage of Variance
Social Rigidity	Restricted affect	.790	62.344
	Perseveration	.790	

Table 71 – New domain 7 – Social rigidity

Another new domain that was created using factor analysis included the indicators *restricted affect* and *perseveration*. Since both indicators relate to social interaction, the domain was named social rigidity. Both indicators seemed relevant to specifically the lone actors and mass shooters. As such, it is suggested that the domain is expanded to include more indicators relating to the subject matter. This domain, too, displayed strong statistical basis with a percentage of variance of 62.344.

9.1.8 New Domain 8 – Attention

Domain	Indicator	Component I	Percentage of Variance
Attention	Distractibility	.821	67.408
	Impulsivity	.821	

Table 72 – New domain 8 – Attention

The next domain to emerge from the factor analyses incorporated *distractibility* and *impulsivity*. The theme that correlates these two indicators is an inability to concentrate and a tendency to make decisions without much thought. It was deemed that attention would be a good way to umbrella both indicators. This domain, too, displayed a strong statistical basis with a percentage of variance of 67.408.

9.1.9 New Domain 9 – Anxiety/Mood Disorders

Domain	Indicator	Component I	Percentage of Variance
Anxiety/Mood Disorders	Depressivity	.788	62.151
	Anxiety	.788	

Table 73 – New domain 9 – Anxiety/mood disorders

As seen in Table 73, *depressivity* and *anxiety* were both grouped together statistically. Since both depression and anxiety are often found in comorbidity, it was decided to group them under anxiety/mood disorders (Kalin, 2020). If future research suggests the relevance of other disorders, it is suggested to add to this domain. Anxiety/mood disorders displayed a strong statistical foundation with a percentage of variance of 62.151.

9.1.10 New Domain 10 – Importance of Social Relationships

Domain	Indicator	Component I	Percentage of Variance
Importance of Social Relationships	Group identity: Social support networks (gangs, religious group, online community)	.768	59.022
	Attention seeking	.768	

Table 74 – New domain 10 – Importance of social relationships

The factor analysis suggested to group together *group identity: social support networks (gangs, religious group, online community)* and *attention seeking*. The correlation was considered theoretically sound as someone seeking attention would likely express themselves through membership in different group settings, whether in person or online. However, as suggested in the discussion section relating to interrater reliability of the identity domain, *group identity: social support networks (gangs, religious group, online community)* incorporates many different facets and as such should be subdivided into multiple indicators. Those indicators could then be included in the importance of social relationships domain. This domain, too, displayed statistical soundness with a percentage of variance of 59.022.

9.1.11 New Domain 11 – Emotional/Identity Self-Regulation

Domain	Indicator	Component I	Percentage of Variance
Emotional/Identity Self-Regulation	Self-identity: Unstable self-concept	.771	59.385
	Emotional dysregulation	.771	

Table 75 – New domain 11 – Emotional/identity self-regulation

Self-identity: unstable self-concept and *emotional dysregulation* were grouped together statistically. At first glance, these two indicators did not seem correlated as one relates to aggressive outbursts and the other relates to identity. However, when examining deeper, a correlation based on dysregulation was found. As such it was decided to group these two indicators together theoretically under the emotional/identity self-regulation domain. The percentage of variance (59.385) suggested a sound statistical basis.

9.1.12 New Domain 12 – Aggression

Domain	Indicator	Component I	Percentage of Variance
Aggression	History of violent criminality	.794	63.102
	Hostility	.794	

Table 76 – New domain 12 – Aggression

Another new domain that was created by the factor analyses revolved around the concept of aggression. *Hostility* and *history of violent criminality* both suggest hatred toward others, as well as a tendency for aggressive behavior. Like with other domains, it is suggested to add more risk factors into this domain if future research warrants it. The aggression domain is considered statistically strong with a percentage of variance of 63.102.

9.1.13 New Domain 13 – Detachment from Societal Norms and Values

Domain	Indicator	Component I	Percentage of Variance
Detachment from Personal or Societal Norms and Values	View that injustices can be addressed through violent means no matter how extreme	.760	57.814
	Disillusionment	.760	

Table 77 – New domain 13 – Detachment from societal norms and values

The last domain incorporating statistically, and theoretically correlated indicators is the detachment from personal or societal norms and values domain. This domain includes both *view that injustices can be addressed through violent means no matter how extreme* and *disillusionment*. Both indicators suggest detachment from previously held beliefs that were considered acceptable either by personal, or societal standards. As such a grouping of both indicators seems reasonable. This domain, again, displayed statistical strength with a percentage of variance of 57.814.

9.1.14 New Domain 14 – Additional Indicators

Original Domain	Indicator
Antagonism	Callousness
Disinhibition	Irresponsible
Disinhibition	Rigid perfectionism
Cognitive	Planfulness (or lack of)
Identity	Self-identity: Self-justifying
Identity	Group-identity: Online activity
Identity	Self-identity: Sense of invulnerability
Ideology	View that public is blind to or enabling injustice
General criminality	History of low-level criminality
General criminality	History of intimate partner violence

Table 78 - Additional indicators

The final domain, additional indicators, included all original instrument indicators that could not be assigned statistically or theoretically. Although at this stage not groupable, these indicators hold value in the concepts they measure. As such it was decided to include these individual indicators in an additional domain. This decision was informed by other terrorism risk assessment instruments such as the VERA-2R. Table 78 displays the additional indicators, as well as their domain origins. Although it is suggested at this exploratory stage to simply group the additional indicators and treat them as individuals' concepts, the case files highlighted two indicators to be extremely important to all terrorist sample groups. As such it is suggested that future expansion of the instrument includes domains surrounding the indicators *group-identity: online activity* and *history of low-level criminality*.

As asserted in the interrater reliability discussion section, both indicators incorporated a multitude of different activities and were, at times, difficult to score due to the large scope of included concepts. It is suggested that *group-identity: online activity* is transformed into a domain incorporating indicators relating to social media following, social media posting, activity on online message boards, frequenting extremist websites, and producing extremist online content. Furthermore, *history of low-level criminality* should be subdivided into theft, drug use, involvement in the drug trade, and driving offenses. These suggestions are based on themes emerging from the reviewed case files. Finally, due to the large number of unassigned indicators, at this exploratory stage, it is suggested that the proposed DSM-5 PID-based terrorism risk assessment instrument is assessed utilizing a global score measured using the sum of all indicators.

Chapter 10.

Conclusion

Corrado's proposed DSM-5 PID-based instrument was constructed following the assertion that the current lack of personality trait indicators on terrorism risk assessment instruments has resulted in a number of false-negatives. Although some instruments currently in use are inclusive towards personality disorder indicators (e.g., VERA-2R), terrorism risk assessment based on personality traits, has not been adopted. By conducting a four-part exploratory validation, this study aimed to assess the relevance and need for a terrorism risk assessment instrument based on DSM-5 PID indicators. The first step was to assess the proposed instrument's utility in the national security field. Two raters scored 154 cases of known terrorists from a select number of Western liberal democracies independently from each other. The agreement scores across all 41 indicators of the instrument were inconsistent. Although, a multitude of indicators displayed good agreement scores, some were considered fair or even poor. Explanations for such disagreement was found in the use of open-source data, the interpretive nature of many indicators, and the incorporation of attack features and ideology. Although discouraging at first, the exploratory interrater reliability study highlighted the potential of the instrument and suggested modifications to increase agreement among raters.

The first part of the validation study examined the instrument's ability to provide consistent risk assessment among radicalized populations. Although at this stage not considered satisfactory, the need for a DSM-5 PID-based terrorism risk assessment tool was assessed through the three following stages of the validation process. A comparison study of right-wing extremist terrorist and Islamist extremist terrorists was conducted to explore the need for ideologically categorized terrorism risk assessment. The main findings of this study were that right-wing extremists were more susceptible to contrarian thought ideas such as conspiracy theories and that they were significantly influenced by the idea of supremacy. Although the group differed in the outlined themes, a need for ideologically categorized terrorism risk assessment was not established. Instead, it was suggested to incorporate different pathways relating to grandiosity and contrarian thoughts.

The next part of the validation process related to personality profile differences in group-based and lone actor terrorists. Significant differences were found regarding the importance of family/peer relations and a desire for meaning and belonging. Furthermore, lone actors seemed more susceptible to conspiracy theories and commitment to extremist ideology or cause was weaker than in the group-based sample. Not only did these differences support Corrado's classification of lone actors as a distinct terrorist typology, but they also informed the decision to conduct a direct comparison between lone actors and mass shooters. This comparison was conducted in response to a growing body of literature examining similarities and differences in mass shooter and terrorist profiles (e.g., Capellan, 2015; Horgan et al., 2016; Lankford, 2012; Liem et al., 2018). Although, differences between the groups were found, these mainly related to ideology. As such, it was suggested that Corrado's instrument could be utilized to assess risk in both lone actors and mass shooters.

Throughout, the second, third, fourth part of the validation, there was no evidence found that criminality differed significantly between any of the sample groups. This was a very interesting finding, especially considering that one of the main focuses of the newly created RADAR-rechts instrument is right-wing propensity for violence. This study did not confirm general criminality to be a disproportionately significant risk factor for right-wing extremist spectrum. The last methodological step taken in this dissertation was to assess the statistical strength of the instrument domains. It was found that the currently proposed instrument was not statistically sound enough. A number of confirmatory/forced factor analyses were conducted and newly created domains, which were deemed both statistically and theoretically aligned, were created. It is suggested that these newly created domains build the basis for future research and modifications of the instrument.

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Appendix. Supplemental Tables.

Rotated Component Matrix^a

	Component														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Intolerance-Consensus	.872	-.049	-.037	.081	.014	-.054	.090	.025	.060	.044	-.112	.042	.004	-.101	.032
Inflexible-Consensus	.867	.017	.042	.014	.066	.009	.017	-.038	-.030	.045	-.011	.066	-.054	.099	-.010
Ideological world view that condones violent political action-Consensus	.663	-.029	-.484	.029	-.050	-.063	-.132	-.092	.008	.129	-.043	.117	.186	-.110	.162
Claims affiliation to an extremist group or cause-Consensus	.536	.021	-.106	-.098	-.052	-.024	-.357	-.023	.139	.058	.323	-.001	.216	-.117	.219
Anhedonia-Consensus	-.027	.857	.159	.116	.027	-.001	-.045	-.103	.082	-.076	.044	-.084	.072	-.010	-.020
Withdrawal-Consensus	.015	.768	.148	-.031	.041	.122	.070	-.105	.071	-.046	.061	.070	.200	-.033	-.195
Intimacy Avoidance-Consensus	-.193	.522	-.271	.111	-.123	.090	.030	.021	.252	.160	-.051	.001	-.010	-.309	.337
Manipulative-Consensus	.113	-.430	.080	.410	.178	.125	.020	-.213	.162	.347	.004	.011	-.092	-.127	-.041
Eccentricity-Consensus	-.109	.037	.790	.119	-.027	.217	-.062	.113	-.110	.061	.065	-.018	.041	.014	-.001
Suspiciousness-Consensus	-.157	.190	.713	-.078	-.004	.074	.120	.046	-.013	-.160	-.002	.106	-.021	-.021	.040
Grandiose-Consensus	.278	-.039	.631	.122	.055	-.104	.131	-.010	.277	.217	.168	.143	.035	-.090	-.003
Risk Taking-Consensus	.094	.088	.014	.744	.021	-.029	-.070	.132	-.009	.230	.074	.050	.011	-.069	.048
History of low-level criminality-Consensus	-.012	-.006	.055	.635	.016	.072	-.160	.033	.034	-.307	-.025	.170	-.026	.256	.136
Deceitful-Consensus	-.165	-.502	.059	.506	.180	-.009	.048	-.230	.178	.110	-.019	.057	.177	-.062	-.063
Irresponsible-Consensus	.158	.191	.021	.415	.161	.186	.355	.005	-.010	-.159	.313	-.070	-.211	-.241	-.055

Table 1 – Rotated Component Matrix (Exploratory Factor Analysis) Part 1

History of violence or threatening behaviour motivated by bias-Consensus	.018	-.076	.153	-.186	.746	.099	-.114	.125	.041	.034	-.003	.028	-.150	-.056	.028
History of gang/criminal organization involvement-Consensus	.023	.091	-.161	.178	.695	-.071	.054	.027	-.046	.314	.122	.070	-.148	-.068	-.057
Self identity: Sense of Invulnerability-Consensus	.006	-.041	-.030	.244	.667	-.131	.001	-.095	-.095	-.094	-.088	.110	.277	.066	.169
Perceptual Dysregulation-Consensus	-.070	.052	.156	-.034	.055	.806	.025	.183	-.027	-.099	.013	-.053	-.005	-.044	-.036
Unusual Beliefs & Experiences-Consensus	.008	.064	.023	.127	-.124	.775	-.065	-.056	.006	.136	.015	.150	.043	.196	.057
Perseveration-Consensus	-.133	.035	.008	-.179	-.034	.008	.724	.110	.016	-.027	-.081	.152	-.116	.053	.059
History of intimate partner violence-Consensus	.116	-.029	.076	-.056	-.134	-.118	.640	-.029	-.135	-.026	.165	.108	.156	-.005	-.103
Restricted Affect-Consensus	.008	-.035	.125	.273	.245	.135	.578	.309	.114	.000	.163	-.340	.014	.016	-.085
Distractibility-Consensus	-.049	-.101	.134	-.042	.065	.102	.116	.730	.057	.071	.002	-.115	.222	-.078	.052
Impulsivity-Consensus	-.084	-.030	.101	.091	.010	.037	.080	.654	.007	-.214	.328	.239	-.167	-.045	-.057
View that the public is blind to or enabling injustice-Consensus	-.127	-.038	.246	-.185	.045	.407	-.021	-.411	.262	-.123	.091	-.032	.030	-.239	.012
Rigid Perfectionism-Consensus	.096	.032	-.112	-.011	-.016	-.016	-.060	-.036	.766	-.041	.015	.059	-.030	.102	-.052
Anxiety-Consensus	-.016	.111	.249	.282	-.159	-.020	-.039	.275	.551	.138	-.175	-.087	.026	-.112	.163
Depressivity-Consensus	-.138	.186	.216	-.002	.082	.177	.020	-.023	.445	.046	.020	.367	.166	.223	-.240

Table 2 – Rotated Component Matrix (Exploratory Factor Analysis) Part 2

Attention Seeking-Consensus	-.064	-.255	.157	.068	.154	-.001	-.006	.116	.026	.681	.147	-.026	-.024	.084	-.089
Group Identity: Social Support Networks (gangs, religious group, online community)-Consensus	.212	.054	-.121	.008	.021	.009	-.072	-.087	-.013	.645	-.139	.065	.025	-.020	.078
Self Identity: Unstable Self-Concept-Consensus	.020	.158	-.036	.225	-.041	.199	-.094	.102	-.145	-.036	.651	-.091	.029	.207	-.098
Emotional Dysregulation-Consensus	-.078	-.047	.202	-.057	.045	-.090	.185	.121	.039	.068	.632	.213	-.006	.005	.056
Hostility-Consensus	.278	-.039	.141	.097	.065	.056	.138	.044	.243	-.007	.001	.693	.128	-.048	-.087
History of violent criminality-Consensus	.048	-.071	.005	.219	.271	.026	.118	-.047	-.258	.110	.262	.568	-.112	-.106	.214
Group Identity: Online Activity-Consensus	.142	.217	-.003	.047	-.107	.068	-.041	.150	-.020	.041	-.018	.087	.767	-.061	-.092
Planfulness (or lack of)-Consensus	.318	-.058	-.068	.170	-.073	.044	-.125	.105	-.138	.215	-.429	.107	-.472	.042	-.097
Disillusionment-Consensus	-.113	-.080	-.012	.046	-.081	.031	.034	-.044	.055	.024	.079	-.026	-.109	.771	-.016
View that injustices can be addressed through violent means no matter how extreme-Consensus	.174	.102	-.096	-.197	.103	.221	.064	-.095	.235	-.012	.047	-.127	.223	.461	.301
Self Identity: Self-Justifying-Consensus	.134	-.103	.041	.109	.104	.020	-.064	.024	-.048	.000	.016	-.005	-.039	.030	.800
Callousness-Consensus	.115	-.087	.014	.270	.281	.303	.087	.368	.094	.176	.143	-.176	.115	-.129	-.377

Table 3 – Rotated Component Matrix (Exploratory Factor Analysis) Part 3

Total Variance Explained												
Component	Initial Eigenvalues		Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings		Extraction Sums of Squared Loadings		Rotation Sums of Squared Loadings			
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.898	9.507	9.507	3.898	9.507	9.507	2.888	7.043	7.043	7.043	17.887	44.714
2	3.728	9.093	18.600	3.728	9.093	18.600	2.396	5.844	12.887	32.731	82.601	205.321
3	2.835	6.915	25.515	2.835	6.915	25.515	2.337	5.701	18.587	47.432	119.953	299.874
4	2.088	5.093	30.608	2.088	5.093	30.608	2.282	5.565	24.152	61.697	156.645	397.519
5	1.896	4.624	35.232	1.896	4.624	35.232	1.970	4.805	28.957	73.502	186.160	466.679
6	1.734	4.230	39.463	1.734	4.230	39.463	1.875	4.573	33.530	85.075	214.733	539.412
7	1.650	4.025	43.488	1.650	4.025	43.488	1.785	4.355	37.885	95.430	242.618	607.030
8	1.560	3.805	47.293	1.560	3.805	47.293	1.774	4.327	42.211	103.757	264.829	663.859
9	1.460	3.560	50.853	1.460	3.560	50.853	1.692	4.126	46.337	118.883	299.166	743.025
10	1.374	3.351	54.204	1.374	3.351	54.204	1.643	4.008	50.345	128.891	324.511	807.536
11	1.276	3.111	57.316	1.276	3.111	57.316	1.640	4.001	54.346	139.892	349.857	869.393
12	1.157	2.822	60.137	1.157	2.822	60.137	1.441	3.514	57.860	147.306	371.371	926.764
13	1.125	2.744	62.881	1.125	2.744	62.881	1.404	3.425	61.285	156.731	395.600	981.364
14	1.084	2.645	65.526	1.084	2.645	65.526	1.387	3.383	64.668	166.114	419.983	1036.347
15	1.028	2.508	68.034	1.028	2.508	68.034	1.380	3.366	68.034	174.480	443.649	1094.391

Table 4 – Eigenvalues of Components (Exploratory Factor Analysis)