

Assessing the behavioral trajectories of terrorists: The role of psychological resilience

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Abstract

Within studies critically examining terrorist behaviour, the examination of mental health has largely focused on the relationship with the movement towards terrorist involvement. The impact of engagement in terrorism upon mental health has rarely been studied. However, recent research has shown that there is an association between terrorist engagement and the occurrence of mental health problems across the spectrum of terrorist involvement. This work therefore expands on previous research, and disaggregates three discrete stages of terrorist involvement; pre-engagement, engagement, and disengagement, to critically examine the role of psychological resilience on mental health. To determine whether psychological resilience protects against the negative psychological repercussions of terrorist involvement, we undertake cluster analyses. Results indicate that there is a subset of actors who demonstrate psychological resilience, and appear to maintain their mental health despite their experiences during involvement in terrorism.

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Introduction

Despite historical criticism among terrorism scholars that the field lacks conceptual and methodological nuance, the quantity and quality of empirical research examining terrorist behaviour is improving. Although there is a general overall upward trend in research quality, there are specific areas that remain underdeveloped (Schuurman, 2018). One of these areas is the need to employ “robust empirical” (Schuurman, p.10) methods to improve understanding of the role of mental health in terrorism. The present study seeks to address this issue. It follows on from recent work (Corner & Gill, 2019, Forthcoming) and employs robust empirical analyses to critically examine the impact of terrorist engagement on psychological wellbeing. We use cluster analysis to detect dynamic patterns in pathways into, and beyond engagement in terrorism, to develop a deeper understanding of the role of individual psychological resilience.

Psychopathology in Terrorism

Drawing from the psychopathological and criminological literature that focuses on developmental approaches, pathway models of terrorist involvement correctly interpret terrorist involvement as a complex and dynamic process, where multiple personal, social, and environmental experiences interact to shape an individual’s psychological wellbeing (Horgan, 2003; McCauley & Moskalenko, 2008; Taylor & Horgan, 2006; Weatherston & Moran, 2003). Rather than examining mono-causal explanations of behaviour, authors championing pathway models acknowledge that engagement in terrorism is likely due to a culmination of experiences crystallising in time and space. The theoretical grounding of these models is underpinned by two main principles: Firstly, individuals may experience a wide range of differing pathways yet each reach the same end point of terrorist engagement.¹ Secondly, individuals who experience similar pathways may reach a number of outcomes,

¹ A principal defined as equifinality (Cichetti & Rogosch, 1996).

with terrorist engagement only being one possibility.² Rather than focusing solely upon the ‘cause’ of terrorist engagement, this shift leads us towards a deeper understanding of the causal chain of terrorist behaviour, and expands understanding of the role of psychopathology (Corner, Bouhana, & Gill, 2019).

Much of the empirical work in this area focuses on radicalisation (Corner & Gill, 2019; Gill, Farnham, & Clemmow, 2021). This has translated into practice. Indeed, a proportion of the currently available risk assessment tools used by professionals tasked with countering terrorism include mental health as a ‘additional’ factor, which is to be considered as both a facilitating and impeding factor, depending on circumstance (Barrelle & Harris-Hogan, 2013; Neo, Dillon, & Khader, 2017; Pressman et al., 2018; Pressman & Flockton, 2012). However, with the exception of a few authors (Corner & Gill, 2019, Forthcoming; Jamieson, Shirlow, & Grounds, 2010; McEvoy, Shirlow, & McElrath, 2004; Weatherston & Moran, 2003), research has not specifically sought to empirically examine the impact of conducting terrorist activity upon the terrorist’s mental wellbeing. Weatherston and Moran’s comprehensive account of former terrorists qualitatively demonstrated how the terrorist lifestyle and group conflict are fundamental variables which may contribute to the emergence of mental disorders within this population (Weatherston & Moran, 2003). McEvoy, et al. (2004) reflected on the post-incarceration periods of ex-Irish Republicans. At least 75% of respondents showed symptoms of post-traumatic stress disorder (PTSD), with almost 60% reporting poor emotional wellbeing. Jamieson, et al. (2010) investigated the well-being and social and economic inclusion of former political prisoners in Northern Ireland. Their report concluded that 39.9% of respondents met criteria for clinically significant mental health problems, with over half reporting symptoms of PTSD, 45.2% described suicidal ideation since release from prison, and 68.8% met criteria for hazardous levels of alcohol

² A principal defined as multifinality (Cicchetti & Rogosch, 1996).

consumption. In their recent work, Corner and Gill (2019) used probability-based analyses on a sample of over 90 terrorist autobiographies. They demonstrated that engaging in terrorism had a negative psychological impact on 45.9% of offenders. Corner and Gill followed the findings of Jamieson et al., and hypothesised that the differences in psychological wellbeing may be due to individual resilience and social buffering. In further research using the same data, Corner and Gill (Forthcoming) critically examined the role of social bonds and their impact on the mental wellbeing of terrorist offenders. This study concluded that in certain circumstances, the social environment of a terrorist group may play a protective role for psychological wellbeing, however, there was still a proportion of offenders who appear to show higher individual psychological resilience.

It should not be unexpected that involvement in a terrorist group may impact on psychological wellbeing. Social environments affect mental health. Our social environments contain pathogenic and eugenic factors (Langer, 1963), which both negatively and positively impact on our psychological wellbeing. Exposure to these factors through discrete traumatic and event stressors³ almost universally negatively impacts on mental health in the short term (Kelley, Pransky, Sedgeman, 2014). However, for most individuals, the detrimental effects dissipate rapidly (Bonanno, 2005). Exposure to chronic stressors correlates more strongly with longer term psychological distress and mental disorders (Turner, Wheaton, & Lloyd, 1995). Moreover, the combination of multiple forms of stressors has a cumulative effect, increasing the risk of a negative mental health outcome further (Thoits, 2010). However, even the effect of cumulative stress is only able to explain between 25 and 40 percent of variance in mental health outcomes, and research has demonstrated that there are a large cohort of individuals who, despite exposure to multiple stressors, do not develop

³ Defined as "discrete, observable events standing for significant life changes, with a relatively clear onset and offset" (Wheaton & Montazer, 2010, p.179).

longstanding mental health problems (Turner et al., 1995). These individuals have typically been classified as resilient.

Psychological Resilience

Protective factors are those that modify or ameliorate an individual's response to some environmental hazard in which a maladaptive outcome is expected (Rutter, 1985). Resilience can be viewed as protective for wellbeing. Resilience is defined as the "ability of a substance to return to its usual shape after being bent, stretched, or pressed" (Cambridge Dictionary, n.d.). This ability is not unique to substances. In behavioural sciences, the term resilience has been appropriated to describe a subset of individuals who, when faced with adversity, demonstrate an enhanced capacity to rapidly recover. Within psychology, the term resilience encompasses a range of concepts related to positive patterns of adaptation in the context of adversity (Masten & Obradović, 2006). Under this broad umbrella, authors have theorised that resilience can be attributed to three distinct kinds of phenomena; (1) good outcomes despite high-risk status, (2) sustained competence under threat, and (3) recovery from trauma (Masten, Best, & Garmezy, 1990).

The first conceptualisation of resilience focuses on individuals predisposed to certain risk factors, defined as "statistical correlates of poor or negative outcomes", who flourish despite their high-risk status (Masten et al., 1990, p. 426). This type of resilience is seen as an inherent trait (which is internal, stable, and continuous) found in certain individuals (Fougere & Daffern, 2011; Garmezy, 1993). In research examining trait resilience, authors argue that we are able to make relatively stable predictions⁴ regarding an individual's mental health (Hu, Zhang, & Wang, 2015). This research has demonstrated that lower levels of trait resilience correlate with negative indicators of mental health, and higher levels correlate with positive indicators (Abiola & Udofia, 2011; Abolghasemi & Taklavi Varaniyah, 2010; Born,

⁴ When compared with the examination of other external protective factors.

Chevalier, & Humblet, 1997; Burns & Anstey, 2010; Hu, et al., 2015; Wagnild & Young, 1990).

The second conceptualisation of resilience refers to the effective coping, or competence, of an individual in response to acute or chronic life stressors either while the stressors are ongoing or immediately following the stressful event (Fougere & Daffern, 2011; Masten et al., 1990). This type of resilience is seen as a process, where, on exposure to stressors during early (and later) life, individuals develop skills to aid them in overcoming adversity (Gillespie et al., 2007; Rutter, 2007; Solomon, Berger, & Ginzburg, 2007). This stream of research has highlighted the importance of an individual's 'social ecology', which facilitates effective coping, including high-quality caregiving, self-efficacy, self-esteem, faith, intellectual capacity, social skills, an internal locus of control, and temperament (Bandura, 1997; Brown & Lohr, 1987; Fougere & Daffern, 2011; Garnezy, 1993; Masten et al., 1990; Ungar, 2011).

The last area of research sits closest to the dictionary definition of resilience, and conceptualises resilience as the outcome of, or recovery from, trauma. Here, an individual exposed to severe adversity rebounds back to their previous psychological functioning (Masten et al., 1990). Proponents of outcome resilience argue that resilience is demonstrated by the reduction in the severity of psychopathological symptoms across a comparatively short timeframe. For example, Bonanno et al., (2005) found that after an initial brief spike in distress following the death of a spouse or parent, a large cohort of individuals, whom they labelled as resilient, managed to keep functioning effectively in their normal routines. Advocates of outcome resilience further argue that there are also a cohort of individuals who will not experience psychopathology as a result of trauma and will instead maintain their competence through the trauma with no disruption to their mental health. Therefore, resilience may not necessarily be the *recovery* from symptoms of psychological distress

following a stressor, but may also apply to those who maintain their mental health during and after the traumatic event (Fougere & Daffern, 2011).

Resilience as Protection

It is now widely recognised within psychiatric literature that exposure to violence leads to an increased, but not exclusive, likelihood of developing longstanding PTSD symptoms (Amaya-Jackson & March, 1995; Brewin, Andrews, & Valentine, 2000; Perry & Azad, 1999). The majority of studies examining the protective effects of psychological resilience on mental health focus on victims of exposure (daily stressors, natural disasters, intimate partner violence) (Bonanno, 2005; Fletcher & Sakar, 2013). Where research has examined resilience among perpetrators, it has mainly focused on recidivism (Efta-Breitbach & Freeman, 2004; Fougere & Daffern, 2011; Todis et al., 2001), with conclusions regarding mental health as supplementary. An exception to this comes from Born et al. (1997). In their investigation measuring the impact of resiliency on desistance, Born et al. identified that resilient offenders were significantly less likely to have a mental disorder diagnosis. Born et al. concluded that resilience, as opposed to familial or community support, was the most important factor in an individual psychologically withstanding adversity.

In other areas of research, there are scholars who have focused solely on psychological distress in perpetrators of violence, with little consideration towards the role of resilience. Burton, et al. (1994) carried out statistical examinations regarding dynamics of gang violence, and the subsequent impact on psychological functioning. Of the sample of juvenile offenders, 24% met clinical criteria for diagnosis of PTSD following exposure to various aspects of gang related lifestyle. Cauffman, et al. (1998) highlighted that rates of PTSD symptoms within female juvenile offenders surpasses both general population prevalence and prevalence within male offenders. Hecker et al. (2013) compared voluntary and forced combatant recruits in the Democratic Republic of Congo. Although voluntary

recruits perpetrated more violent acts, forced recruits were significantly more likely to report PTSD symptoms. Ellis et al. (2016) examined the disparate behavioural and attitudinal outcomes of Somali refugees, finding that exposure to traumatic events and having mental health problems was associated with gang and delinquent activity. They noted, however, that determining the temporal ordering of these factors was an important area for further inquiry. Papanastassiou et al. (2004) investigated PTSD symptoms in a sample of murderers. The prevalence of PTSD following murder was found to be 58%, with a further 21% of individuals displaying symptoms. Although this research advances our understanding of both the impact of resilience on committing offences, and committing offences on psychopathology, there is a dearth of investigation of the role of resilience in mitigating the impact of committing offences on the mental health of the perpetrator.

Terrorists are often both witnesses to, and perpetrators of violent behaviour. However, comparable to exposure to other types of violence, levels of mental disorder in group-based terrorists have been consistently reported as significantly lower than both lone-actors and the general population (Corner & Gill, 2015; Corner, Gill, & Mason, 2016; Gill, 2015; Gruenewald, Chermak, & Freilich, 2013; Hewitt, 2003). Although proponents of criminological and sociological theories have argued that social bonds between group members who perpetrate political violence act as moderators to alleviate the effects of stressors on mental health of individuals (Muldoon & Downes, 2007; Muldoon, Schmid, & Downes, 2009; Muldoon & Wilson, 2001; Schmid & Muldoon, 2013). Corner and Gill (Forthcoming) concluded that social bonds alone are not sufficient to explain the prevalence of mental disorder within group-based terrorists. They also noted that the long-standing conclusion that group-based terrorists are less likely⁵ to suffer from mental disorders, may, in part, be due to the individual resilience of those involved.

⁵ Than both lone-actor terrorist and general population samples.

This research seeks to interrogate this conclusion further by examining resilience using a dataset of group-based terrorists. Specifically, the study aims to identify whether resilience among these terrorists is an inherent trait possessed by some individuals; a process, developed over time in response to stressors; or an outcome through the ability to ‘bounce back’ in response to severe adversity.

Analytical Rationale

In the present study we use a series of cluster analyses to deductively identify groups of resilient (and non-resilient) individuals within our dataset of group-based terrorists. Previous criminological research has used cluster analysis to detect latent sub-groups in offending populations. The majority of studies disaggregate populations across variables of interest in order to identify un-measured class membership. They conceptualise different classes as types in a typology, and utilise a series of cluster analyses to articulate pathways that span the offending trajectory. For example, this analytical strategy developed pathway typologies of a range of offenders, including non-serial sexual killers (Stefanska et al., 2015), sex offenders who target marginalised victims (Horan & Beauregard, 2017), extrafamilial sexual aggressors against women (Proulx et al., 2014), intrafamilial child sex offenders (Leclerc et al., 2014), extrafamilial sexual aggressors against adolescents (Brouillette-Alarie & Proulx, 2014), and marital rapists (Proulx & Beauregard). More recently, Clemmow, Bouhana and Gill (2019) developed a typology of person-exposure patterns (PEPs) in 125 cases of lone-actor terrorism. The results demonstrated how individual level characteristics interact with situational factors in the move towards terrorism. As this present study seeks to investigate the interaction between situation and psychopathology in terrorist offenders, it is reasoned that this is an effective analytical strategy.

Materials and Methods

Data

We critically examined terrorist autobiographies to solicit relevant information regarding the terrorist life course. Autobiographical information is heavily reliant on autobiographical memory. Autobiographical memory plays a critical role in the construction of individual identity, accounting for what occurs, and when in a lifespan. Given this, systematic analysis of terrorist autobiographies has the potential to offer understanding of psychogenesis, thought processes, reasoning, and social construction over a life course, an advantage not afforded in prevalence studies (Altier, Horgan, & Thoroughgood, 2012; Altier, et al., 2017; Altier, Leonard Boyle, & Horgan, 2020). Analysis of autobiographical data also limits participant reactivity via (a) removal of contamination effects found in observation studies (b) elimination of researcher-participant interactions, (c) removal of expectancy bias from participants, and (d) reduction of artificiality found in interview designs (Altier et al., 2012; Krippendorff, 2004).

We used Shapiro's (2013) bibliography as an initial source for identifying potential autobiographies. This yielded 108 autobiographical texts. Within this dataset, autobiographies were chosen for inclusion based on language (English and translated documents), timeframe (due to text availability, individuals active prior to 1900 were removed), admission of action, and availability. Due to time and resource constraints, only documents that were in print or available through libraries were considered. Accounts only providing brief timeframes were excluded (e.g. Donal Donnelly, *Prisoner 1082: Escape from Crumlin Road, Europe's Alcatraz*; Bobby Sands, *A Day in my Life*),⁶ as were texts that portrayed an overview of the organisation rather than an account of their personal journey (e.g. Naim Qassem, *Hezbollah: The story from within*). These criteria yielded 80 texts.

⁶ As the analyses conducted were examining distinct phases in a life course, autobiographies chosen for analysis gave insight into early life experiences, periods prior to engagement, during engagement, and post disengagement. Autobiographies which did not include writings on these periods were not taken forward for examination.

Following this, further texts were sought using online repositories, bookshops, and libraries. This left 97 autobiographical accounts from 91 individuals for analysis. The autobiographies covered a range of group ideologies including ethno-nationalism (61.5%), left-wing (22%), right-wing (6.5%), religious (4.5%) and single-issue (0.9%).

Procedure

This research used a codebook developed to examine the life course of terrorists. The codebook contained 197 questions, covering; early life experiences, mental health problems, recruitment, roles and experiences whilst engaged, disengagement, post-disengagement experiences, and stressors. These questions were derived from previous codebooks used for open source data collection (Gill, Horgan, & Deckert, 2014), autobiographical data collection (Altier et al., 2012), and literature on terrorist engagement and disengagement (Altier et al., 2017; Borum, 2010; Gill & Corner, 2017; Horgan, 2009a, 2009b; Reinares, 2011; Silke, 2003; Taylor & Horgan, 2006).

Coding included a categorical answer for type of indicator, presence of indicator (yes, no, unknown, not applicable), frequency of indicator, and direct transcription from the source matched to the relevant question, with the date of the occurrence included, and a page number. Only information directly presented in the source was utilised.⁷ If an extract was appropriate for multiple questions, it was transcribed for each. Where no answer for a specific question was available in the text, it was noted as 'unknown', and where questions were not relevant (for example disengagement event questions, when a terrorist did not disengage), 'not applicable'. This top-down approach to coding has advantages over other more subjective coding, such as grounded theory which can be hampered by subjective opinion (Corbin & Strauss, 1990). The first author coded each of the texts. To ensure reliability, an independent coder was trained on the coding procedure but left blind to the

⁷ With the exception of identifying whether the terrorist was still alive, where information was also sought externally.

research hypotheses. The second coder independently coded seven (7.2%) autobiographies. The reliability of coding achieved 82.1% agreement, and a corresponding Cohens Kappa of 0.73, suggesting substantial coding reliability (Viera & Garrett, 2005).

Due to the sensitive nature of specific subjects, such as abuse and mental disorder, there was an inherent lack of disclosure.⁸ Some authors may have been unwilling to disclose their sensitive medical histories.⁹ The autobiographies cover a range of cultures and diagnosed mental disorder prevalence differs greatly across countries (Kessler & Üstün, 2008). In some cases, official diagnoses may be lacking because the individual never sought professional advice for their distress.

Considering these shortcomings, our inferential analyses focused on the reporting of psychological distress.¹⁰ An individual was coded as suffering from psychological distress if they gave information regarding their poor mental state. Items within the symptom scales of the Brief Symptom Inventory 18 (BSI-18) were used as a framework for identifying reported experiences of psychological distress (Derogatis & Fitzpatrick, 2004). The BSI-18 includes items relating to somatisation, depression, and anxiety, and has been evaluated as having high reliability and validity (Franke et al., 2017). Examples of coded psychological distress include Ingo Hasselbach's suicidal ideation during terrorist engagement: "I started to think of hanging myself that night. I looked around for places to do it, thinking that, just as it was a disadvantage to be as tall as I was in a firefight, it was equally a disadvantage when you wanted to hang yourself" (Hasselbach & Reiss, 1996, p.330), and Susan Stern's continuing

⁸ Thirteen (11.9%) individuals disclosed they suffered from a mental disorder during their life. This figure is well below the general population average of 25%, supporting the findings of Corner, et al. (2016) who highlighted the lower than average prevalence of diagnosed mental disorder among group-based terrorists.

⁹ The phenomenon of concealment has been well documented across literature examining stigma. For more information, see recent works by Bril-Barniv et al. (2017), Elliot & Doane (2015), Oexele et al. (2017).

¹⁰ Defined as the range of symptoms that may concern, confuse, or trouble an individual. Psychological distress has a wider remit than mental disorder, as it does not require a specific set of medically defined attributes. An individual suffering from psychological distress may exhibit some symptoms commonly identified across mental disorders. These symptoms may resolve without medical intervention; however, the long-term experience of such symptoms may lead to the diagnosis of a specific mental disorder. Life events influence the onset of psychological distress.

mental health problems throughout her engagement: “I flopped around doing nothing for two weeks, sunk in melancholy. I continued taking downers. I drank anything to relieve my misery, to allow me to sleep” (Stern, 1975, p.241). Psychological distress was measured during three phases of the terrorist life-cycle; pre-engagement, engagement, and post-disengagement.¹¹

Conceptualisation of Indicators

To mirror the measurement of psychological distress, the engagement process was conceptualised into three distinct phases; *pre-engagement*, *engagement*, and *post-disengagement*. This follows the pathway approach developed by Horgan (2008). Horgan outlined how psychology can contribute toward an understanding of the terrorist. He advocated viewing terrorism as a process (as opposed to a psychological state) comprising three phases; becoming involved, being involved, and disengaging.¹² Proponents of pathway models, therefore, recognise that psychopathology in terrorism is not static and should not be measured as such (Corner & Gill, 2019; Ferracuti, 1982; Horgan, 2003; Weatherston & Moran, 2003). The indicators included for analysis across the three components are detailed in Table 1 below.

[INSERT TABLE 1 HERE]

Analytical Phases

The analysis proceeded in two stages. The first stage used cluster analysis to identify sub-groups within each of the components. We used the two-step cluster analysis function in Statistical Program for Social Sciences (SPSS) version 25 (IBM Corp, 2017). Cluster analysis identifies homogenous groups of cases where the grouping is not known. The objects of the

¹¹ As with the discussion regarding disclosure of diagnosed mental disorder, the prevalence of reported distress is likely to be lower than the lived experiences of the terrorists.

¹² In this research, disengagement was defined as “the process whereby an individual experiences a change in role or function that is usually associated with a reduction of violent participation. It may not necessarily involve leaving the movement, but is most frequently associated with significant temporary or permanent role change.” (Horgan, 2009, p.152).

clusters are the cases, and the indicators are the attributes by which the cases are clustered. The result is homogenous groups of cases that share a set of attributes. First, two-step cluster analysis computes pre-clusters, which reduces the size of the matrix of distances between all possible pairs of cases. This allows for handling large amounts of data, quickly. The data are categorical, and so the log-likelihood distance measure was used. Second, the nature of the clusters is determined by a hierarchical clustering algorithm. Hierarchical clustering is used to compute solutions from 1 to n, in which at n solutions, each case is a cluster. The optimal number of clusters is determined by Bayesian Information Criterion (BIC).

One way to measure the homogeneity of the cluster solution is the silhouette measure of cohesion and separation. This measure articulates how cohesive the clusters are within themselves and how separate they are from one another. Potential values range from -1 to +1. In a perfect solution, the within-cluster distances are small and the between-cluster distances are large. This would be represented by a value close to +1. If the inverse is true, a value close to -1 would be expected. To guide interpretation, the values are summarised as poor, fair or good in the model summary generated by SPSS. A value summarised as fair, for example, indicates a fair degree of separation (the clusters are fairly distinct from one another) and cohesion (the clusters are fairly homogenous within themselves). This can further be seen when examining the frequencies reported in the results tables.

The second stage of analysis identified patterns in group membership across all three phases to articulate pathways, or styles of interaction (Clemmow et al., 2019). To do so we performed a second cluster analysis on first-stage group membership.

Results

Cluster Analysis

Pre-engagement

Cluster analysis of the pre-engagement component identified three clusters (Table 2). The clusters were named by interpreting the presenting pattern of indicators. Indicators appear in

order of their importance to the overall cluster solution. Highlighted in bold are the most salient features of each cluster. The silhouette measure of cohesion and separation was 0.3, which is fair.

The *resilient* cluster is characterised most saliently by experiences of multiple stressors, alongside relatively low frequencies of reported psychological distress. For instance, these offenders reported experiencing personal victimisation (96.4%) and discrimination (100%), yet only 14.3% reported psychological distress. This cluster also demonstrates comparatively higher rates of military service (32.1%), imprisonment (35.7%), and familial death (39.3%). Of note, none of these offenders described problematic drug or alcohol use, very few were loners (3.6%), and none had a history of family mental illness.

The *stable* cluster is characterised most saliently by a *relative* pattern of stability. This is not to say that they are not resilient or vulnerable, rather those within this cluster did not report encountering stressors that could affect their mental wellbeing in the pre-engagement space. Individuals in this cluster had the lowest reporting rates across a range of stressors, with only 7.7% feeling personally victimised and 20.5% experiencing discrimination. They were also the most financially stable, and only 2.6% of individuals in this cluster reported psychological distress.

Lastly, the *vulnerable* cluster demonstrates a pervasive pattern that is suggestive of an at-risk cohort, including physical (62.5%) and verbal (25%) abuse, problematic drug (66.7%) and alcohol (50.0%) use, criminal activity (75%), victimisation (41.7%), discrimination (66.7%), isolation (54.2%), and over two thirds described psychological distress (66.7%).

[INSERT TABLE 2 HERE]

Engagement

Three clusters were identified in the engagement component. The silhouette measure of cohesion and separation was 0.2, which is fair. Of particular note is the finding that levels of

psychological distress are high across all clusters. This is to be expected due to the high frequency of involvement in violence and exposure to multiple stressors during engagement, and validates the conclusions of numerous authors (Ferracuti, 1982; Horgan, 2003; Weatherston & Moran, 2003). Therefore, the interpretation of results (Table 3) assesses the comparative differences between clusters, not the overall prevalence.

In this phase, the *stable* cluster is characterised by comparatively low frequencies of multiple stressors (prejudice (0%), victimisation (12.5%), disrespect (6.7%), imprisonment (29.2%), alcohol misuse (0%), harm due to negligence of another (0%) experiencing exile (29.2%), physical illness (25%)), a lack of feelings of guilt (8.3%) or regret (0%) and described being more committed to the group during the engagement phase (62.5%). This cluster also reports the lowest prevalence of psychological distress (41.7%).

The *resilient* cluster is typified by relatively high frequencies of stressors (imprisonment (86.5%), prejudice (70.3%), victimisation (64.9%), exile (62.2%), physical illness (54.1%), and experiencing being disrespected (78.4%)), however they also described favourable attitudes towards the group (70.3%), positive attitudes towards the groups' leadership (70.3%), and 81.1% maintained social ties outside of the group. These individuals also reported psychological distress (51.4%) at a lower rate than those within the vulnerable cluster. It is also notable that few described feelings of regret (2.7%), guilt (2.7%) difficulties coping (0%) with their actions, or dissatisfaction with the actions of the group (29.7%).

The *vulnerable* cluster is characterised most saliently by terrorists who feel less committed to the group during engagement (43.3%), who regret their involvement (63.3%), were dissatisfied with the group (90.0%), reported feelings of guilt (53.3%), and had difficulties coping (33.3%). These offenders experienced higher frequencies of being victimised (83.3%), and expressed a desire to disengage (76.7%). These terrorists report the highest rates of psychological distress (60%) (and mental disorder (26.7%)), despite also

reporting relatively lower rates of a range of stressors as compared to those in the resilient cluster.

[INSERT TABLE 3 HERE]

Disengagement

Cluster analysis of the disengagement component identified only two clusters (Table 4). The silhouette measure of cohesion and separation was 0.3, which is fair. The *vulnerable* cluster is characterised by terrorists who remain radicalised (70%) and committed to their ideology (71.7%), but are disillusioned with the groups' actions (70.7%), leadership (61.7%), and strategy (60%). Feeling guilt over their role (40%) and that their tasks were too risky (28.3%) were also reported as contributors toward their disengagement. A comparatively large proportion of these terrorists also reported burnout (43.3%), discrimination (31.7%), and dissatisfaction (16.7%). Even though a large proportion of these terrorists reported emotional (53.3%) and material (50%) support, a high proportion also reported psychological distress (55%).

The *resilient* cluster are typified by a lack of commitment to their original ideology (96.8%), and low rates of radicalisation (9.7%). Despite this reporting, all of these terrorists viewed their actions as morally justified (100%). This is also supported by the lack of terrorists who reported being disillusioned with the groups' actions (0%), strategy (0%), and leadership (0%). There is also a distinct lack of reporting of stressors in this cluster, and no reporting of psychological distress.

[INSERT TABLE 4 HERE]

Behavioural Trajectories

The second phase of the analysis sought to detect patterns in cluster membership across the engagement trajectory in order to infer pathways, or styles of interaction. The purpose of exploring these pathways was to identify whether resilience is an inherent trait found within

some individuals, or whether it developed over time or in response to, or as an outcome of, exposure to acute stressors. In order to detect cluster membership across the three phases, bivariate analysis first established if these phases were related. Pre-engagement was found to be significantly associated to engagement ($V = .27, p < .05$), and engagement was significantly associated with disengagement ($V = .41, p < .01$). Therefore, all significantly associated phases were submitted for further analysis.

Cluster analysis identified four clusters (Table 5). The silhouette measure of cohesion and separation was 0.4, which is fair. The resilient cluster are stable (50%) or resilient (50.0%) at pre-engagement, resilient (100.0%) at engagement, and resilient (100.0%) at disengagement. The fused cluster are resilient (58.8%) at pre-engagement, stable (100.0%) at engagement, and vulnerable (52.9%) at disengagement. The vulnerable cluster are vulnerable (100.0%) at pre-engagement, vulnerable (58.3%) at engagement, and vulnerable (79.2%) at disengagement. Lastly, the discontented cluster are stable (62.5%) at pre-engagement, vulnerable (50%) or resilient (50.0%) at engagement, and vulnerable (100.0%) at disengagement.

[INSERT TABLE 5 HERE]

Discussion

Current research investigating terrorism largely agrees on two broad ideas, both of which need to be reflected in how we consider the relationships,¹³ between terrorism and mental wellbeing. First, there are multiple pathways into and through terrorism (Altier et al., 2017; Horgan, 2009, 2009a). A wide range of factors contribute to each individual's pathway, and these factors, and their causal weighting, differ greatly between terrorists. The two principles underpinning this approach are equifinality and multifinality (Cichetti & Rogosch, 1996).

¹³ Plural intended.

In the present investigation, we followed these principles, and have identified four trajectories in a population of group-based terrorists. It is worth noting that although this study sought to examine psychological resilience, engagement within a terrorist group is an inherently social process, and the social relationships formed during engagement have shown to be intrinsic in two of the four trajectories. The following sections outline the interpretations of each trajectory, before a discussion of the implications of the findings of the study.

Resilient Trajectory

This trajectory is characterised by a lack of long-term psychological reaction to the experience of stressors. This trajectory lends support to the work of Corner and Gill (Forthcoming) who hypothesised that a proportion of terrorists show resiliency in their early lives, despite experiencing adverse circumstances. Those following this trajectory are defined most saliently by relative stability in their early lives, resilience whilst engaged in terrorism, and resilience following disengagement.

This trajectory also lends empirical support to process models of resilience, demonstrating that resilience is developed over time in response to stressors. Individuals following this trajectory have relatively low experiences of stressors during their early lives, and while they show the greatest amount of early life resilience compared to other trajectories, the result is marginal, which does not support trait models of resilience. These individuals are exposed to numerous tangible stressors throughout engagement, though perhaps not to the extent of the vulnerable or discontented trajectories. They differ from the fused trajectory due to their high self-efficacy - the belief in one's capabilities to overcome adversity (Bandura, 1997; Bandura & Cervone, 1983), which appears to enhance their coping skills once the social environment of the terrorist group is removed. Their experience of

trauma during engagement is not reflected in their psychological outcomes either during engagement or following disengagement, supporting outcome models of resilience.

When assessing the engagement space, what sets this trajectory apart is the relatively low reporting of psychological distress¹⁴ despite the experience of numerous stressors (prejudice, victimisation, disrespect, imprisonment, alcohol abuse, exile, fear of harm, familial death).¹⁵ Those within this trajectory also had the highest rates of physical illness across all trajectories. During coding, certain physiological symptoms were coded as somatisation (utilizing the BSI-18) within the measure of psychological distress to help remove the bias identified by Corner and Gill (Forthcoming).¹⁶ Therefore, in this instance, physical illness was only coded if the ailment was not related back to somatisation.

In the disengagement space, all individuals within this trajectory were classified as resilient. They are characterised by the lack of reporting of psychological distress alongside the lack of external support networks as the individual re-entered the community that they left during engagement. Interestingly, these individuals showed no ideological commitment or radical attachment to the group that they were engaged with following disengagement. These individuals were most likely to disengage in a collective (94.4%), with some evidence of fear (of being apprehended and victimised),¹⁷ although it is not reported that this enabled the disengagement process, and they also show a distinct lack of all other negative rationale for their disengagement (disillusionment, discrimination, guilt, risk, dissatisfaction).

¹⁴ The reported prevalence of psychological distress were identified as 19.1% for those classified in the resilient trajectory, 10.6% for those classified in the fused trajectory, 34% for those classified in the vulnerable trajectory, and 36.2% for those classified in the discontented trajectory.

¹⁵ Although those in the fused trajectory had a lower reported prevalence of psychological distress, these individuals also reported far less experiences of the stressors reported by those in the resilient trajectory.

¹⁶ Corner and Gill note; "when individuals did not disclose psychological distress, they are negatively impacted by their journeys through terrorism. This is further supported by the evidence which shows that physical illness occurred following a range of specific stressors, physiological distress, guilt over actions, and problems with living a clandestine lifestyle. This behavior string suggests that in some cases, physical illness may be a physical manifestation of deep seated psychological distress."

¹⁷ Likely due to the rates of imprisonment (25%; which was the second highest prevalence across trajectories (only discontented was higher at 43.3%) during engagement in this trajectory.

The lack of impact on the psychological wellbeing of these individuals following disengagement is likely due to their lack of reliance on the social environment of the group due to their high self-efficacy. High self-efficacy has been empirically linked to resilience, with those classified as resilient more likely to demonstrate high self-efficacy (Hamill, 2003). Importantly, individuals with high self-efficacy are more likely than those with low self-efficacy to reject negative thoughts about themselves or their abilities (Ozer & Bandura, 1990). The above results also imply that once disengaged, there is no longer an ideological or social pull towards their former lifestyle. The resilient individuals' high self-efficacy most likely contributed to their sense of closure on their terrorist engagement.

Fused Trajectory

Individuals within this trajectory are characterised by the reporting of psychological distress following the removal of the social support provided by the group. The results for this trajectory support the works of Corner and Gill (2019; Forthcoming), who hypothesised that identity fusion¹⁸ may play a protective role during engagement in terrorism. These individuals appear similar to those in the resilient trajectory in their early lives, however they show a greater level of stability (58.8% compared to 50%). This stability is marked by greater economic stability, and lower rates of victimisation and discrimination, alongside an absence of reporting of psychological distress. However, those in this trajectory show poorer connections with their family in their early life, with many reporting poor familial relations, and twice the rate of divorce as found in the resilient trajectory.

In the engagement space, these individuals are distinct from those classified as resilient, as all individuals in this trajectory are classified as stable. The stability in this cluster is found within the attachment to the group. Although these individuals are not

¹⁸ Identity fusion occurs as a consequence of a group's shared identity. In identity fusion, the boundaries, which normally demarcate the personal and social self, become highly porous, allowing aspects of both the personal and social self to cross over, without reducing the integrity of either self. This results in robust feelings of connectedness with both the group and group members. These strong feelings nurture relational ties to others within the group (Swann et al., 2012).

necessarily fused to the aims of the group as evidenced by the comparatively low satisfaction with their day to day tasks, they do show a distinct fusion to the group as a whole, marked by their increasing ideological commitment over time. They are also the least likely trajectory to maintain external ties or experience imprisonment or exile, and are the least likely to report fearing harm from the group, guilt over the actions of the group, or a desire to disengage. These results support the conclusions of Corner and Gill (2019) who expressed that those who did not report psychological distress were likely to have undergone identity fusion with others in the group.

In the disengagement space, these individuals differ from the other trajectories as they are almost equally likely to show vulnerability as resiliency. Compared to those who follow the vulnerable or discontented trajectories, they show low radical tendencies and ideological commitment. They also demonstrate some disillusionment with their former group members, leadership, and group strategies (although again this is lower than both vulnerable and discontented trajectories). The rationale for disengagement for these individuals is not due to the impact of stressors from engagement. However, in over half of the terrorists where disengagement was discussed, it appears to be driven by the ending of the group. These individuals show comparatively low (than that vulnerable and discontented trajectories) levels of support following their disengagement, and a proportion become involved in non-political criminal behaviour. This move towards criminality may be in an attempt to replace their previous social ties of the terrorist group with a new group. Authors highlight that if it is not possible to degrade the existing ties of highly fused individuals (through the introduction of new belief systems and perceptions as would be undertaken during a deradicalisation program), which may happen if the social group is disbanded with immediate effect, some individuals may move to immerse themselves into a new social group, and shift their identity accordingly (Fredman et al., 2015).

The individuals in this trajectory are distinct in their social attachments and identity fusion. Identity research has consistently assumed that high-quality parent-child relationships fosters the safe development of identity (Grotevant & Cooper, 1985; Meeus, Oosterwegel, & Vollebergh, 2002). These results tentatively support this assumption. The individuals in the fused trajectory have weaker social bonds with their families, which appears to lead them to a quest to find their identity in the terrorist group. Following disengagement, and the removal of their terrorist identity, these individuals show poor psychological wellbeing. This is unsurprising as research has consistently shown that when an individual disengages from a terrorist group, their external social alternatives are greatly diminished: The process of disengagement can be highly psychologically damaging, as an individual will need to restructure their personal relationships, and even the meaning behind their own actions (Broadhead et al., 1983; Gunaratna, 2009; Kessler, Price, & Wortman, 1985; Swann et al., 2012). It may be that in this sample, the individuals following this trajectory attempted to replace these lost relationships with others in the criminal space.

Vulnerable Trajectory

Individuals within this trajectory are characterised by the continual experience of both acute and enduring stressors and negative psychological reactions. They are distinct due to their experience of a wide range of stressors during early life development, many of which are behavioural responses to childhood abuse (substance use, self-isolation, criminal behaviour and subsequent imprisonment, unemployment, divorce). These individuals are also marked by a family history of mental health problems and instability. Unsurprisingly, they show the highest rates of psychological distress and diagnosed mental disorder of any trajectory.

Individuals following this trajectory also demonstrate the highest amount of vulnerability during their engagement with a terrorist group. This is characterised by low (as compared to the discontented trajectory) reporting of stressors such as victimisation, guilt,

dissatisfaction, disrespect, imprisonment, fear, exile, and carrying out violence alongside the highest reporting of substance use and mental disorders. It may be that these individuals abused drugs and alcohol as a coping mechanism and failed to report the stressors as opposed to not experiencing them. The use of alcohol and drugs as coping mechanisms for dealing with psychological trauma has been documented widely in the scientific literature (Boscarino, Adams, & Galea, 2006; Keyes, Hatzenbuehler, & Hasin, 2006; Ullman et al., 2013). These individuals also demonstrate a waning commitment to the ideology throughout their engagement.

In the disengagement space, a proportion of these individuals show traits of resiliency, as the reporting of psychological distress is reduced as compared to the previous spaces. This is likely due to the accessibility to psychiatric, emotional, and material support. Unlike individuals in the resilient and fused trajectories, the individuals in this trajectory do report a range of negative outcomes following disengagement (guilt, discrimination, burnout, dissatisfaction, and victimisation). Drawing on the findings from studies on the effects of childhood adversity on poor mental health outcomes and sensitisation to stressors in adulthood (Callaghan & Tottenham, 2016; Green et al., 2010; Hammen, Henry, & Daley, 2000; McLaughlin et al., 2010), it is likely that the negative early life experiences of individuals in this trajectory impaired their ability to develop effective cognitive mechanisms when faced with adversity later on in life.

Discontented Trajectory

This is the largest trajectory ($n = 32$), containing almost a third of the entire sample.

Individuals in this trajectory are distinct as they demonstrate high social support across all phases and comparatively low experience of stressors, but high reporting of negative attitudes whilst in the engagement and disengagement space. In the pre-engagement space, these individuals are defined by relative stability. They show good familial relationships (as

compared to all other trajectories), and the highest rates of full-time employment, factors that have been documented in the literature to be associated with stability and quality of life (Axelsson et al., 2007; House, Landis, & Umberson, 1988; Kawachi & Berkman, 2000; Masten & Coatsworth, 1998). Individuals in this trajectory also report the highest rates of victimisation and discrimination, which appears to be an indicator of a pattern of negative attitudes that develops over time.

During engagement, these individuals are characterised by high reporting of negative attitudes (waning ideological commitment, dissatisfaction, regret, victimisation, prejudice, guilt, disrespect, difficulties coping) in the relative absence of other physical stressors (as compared to the vulnerable trajectory). These individuals are also the most likely to maintain external social ties. They have the highest rates of familial engagement and support, and are most likely to verbalise that this negatively impacts their wellbeing. This trajectory lends support to Corner and Gill (Forthcoming), who identified that holding external relationships during engagement was a factor in the reporting of psychological distress. These results imply that due to their ongoing external relationships, individuals in this trajectory may not be able to fully fuse their identity with the group. Research has demonstrated how holding multiple group identities can lead to cognitive dissonance and experienced discomfort if conflicting ideas or beliefs are simultaneously active (Hugenberg & Bodenhausen, 2004; Newby-Clark, McGregor, & Zanna, 2002). The prevalence of psychological distress is also likely amplified by the number of individuals who spent time in prison during engagement (as compared to other trajectories).

Individuals in this trajectory are all classified as vulnerable in the disengagement space. Much like in the engagement space, despite their enduring radical views and overall ideological commitment, these individuals are the most likely to hold negative views of their fellow group members and leaders, as well as their experiences. Their disengagement appears

to be triggered by a wide range of espoused feelings including fear, burnout, disillusionment with others, disillusionment with the strategy of the group, problems balancing their external relationships and feeling as though their role was too risky. These individuals were also the most likely to be expelled from their group (50%). What does appear to make this trajectory distinct during disengagement is the continued ideological attachment and espoused radicalisation following disengagement. It is likely that the vulnerability within this trajectory is a consequence of the individual's disengagement but lack of deradicalisation.¹⁹ In the relative absence of tangible stressors, what is most interesting with these individuals is that despite the highest rates of external support following disengagement (emotional, material, and psychological), they are the most likely to continue to report ongoing discrimination, fear of victimisation, and being judged by others.

Implications

There is a consensus across current literature that decisions to engage and then disengage vary hugely across terrorists, with multiple factors influencing these decisions. However, this research has been the first empirical work to unpick the association between these factors, and identify how journeys through terrorism affect, and are affected by, individuals' mental wellbeing. The findings of this research supplement the burgeoning range of studies investigating the nature and determinants of terrorist-related behaviour, and the role of mental health. Each study has influenced theory, policy and practice in areas concerned with violent extremism prevention, disruption, and management. The vast majority of such studies are heavily weighted on identifying the prevalence of mental disorders and associations between factors and the disorders. Indeed, mental disorders and associated vulnerabilities are now commonly incorporated into terrorist risk assessment. However, in the determination of risk

¹⁹ Literature on disengagement encourages a conceptual distinction between these two phenomena, where those who disengage changing their behaviours, but those who deradicalise also changing their cognitions and belief system (Ferguson, 2015; Horgan & Braddock, 2010).

it is insufficient to solely focus upon single factors. The focus should rather be on the totality of an individual's circumstances.

This research moves away from identifying 'presence', and toward identifying 'relevance'. We sought to understand the mechanisms through which mental wellbeing affects and is affected by engagement in terrorism. The results follow the findings of other work in resilience, demonstrating that, risk factors do not impact all individuals equally.²⁰ The results also provide important implications, which current prevention, de-radicalisation, and disengagement programs should consider.

Following the work of Altier, Boyle, and Horgan (2021), and given the high levels of voluntary collective disengagement, individuals following the resilient trajectory appear to be at low risk for re-engagement. However, they do demonstrate a range of stressors that psychological and social interventions could prove beneficial. For those in the vulnerable trajectory, psychological distress spanning from early life experiences and involvement in terrorism impacts a significant proportion of individuals after disengagement. For these individuals, radicalisation prevention programs focusing on improving social and psychological wellbeing and circumstance may be most effective, and de-radicalisation and disengagement programs conducted over a limited time period may not be sufficient to alleviate distress. Similar to Ellis et al., (2016), our findings suggest that programs will need to understand and address trauma and mental health as critical aspects in improving psychological wellbeing. For fused individuals, programs may need to be tailored to ensure adequate social re-integration, to avoid the significant long-term social, economic, and psychological harms identified by researchers investigating the conflict in Northern Ireland (Jamieson et al., 2010; McEvoy et al., 2004). As noted, those classified as discontented are likely vulnerable due to their lack of attitudinal change toward their radical belief system. For

²⁰ See for example, Ellis et al. (2016).

these individuals, they would require engagement in programs that focuses on the cognitive changes required for effective de-radicalisation (Horgan & Braddock, 2010; Schmid, 2013).

Limitations

One major limitation with analysing autobiographical data to determine the mental state of individuals who have been involved in terrorism is the reliability of sources. Longevity of autobiographical memory is fragile, and fades over time (Berney & Blane, 1997; Rubin, Wetzler, & Nebes, 1986; Walker, Vogl, & Thompson, 1997). A memory is more effectively recalled if the mood at recall matches the mood at learning. Recall is also more effective when individuals are in a positive rather than negative mood (Ucross, 1989). Many of the autobiographies analysed in this work were written following disengagement, some years after, and recalled unpleasant, sometimes horrific events; where possible, therefore, major incidents recalled in the autobiographies were cross-checked with historical records to identify potential inaccuracies. A secondary limitation is that the sample of autobiographies is likely not truly representative of the experiences of individuals who do engage in terrorism. Those who write autobiographies are motivated to do so by a wider range of factors, but they are only a small proportion of those who ever engage. A larger concern is the potential for bias in autobiographical accounts. Wilson and Ross (2001, 2003) highlight that autobiographical memory recall is skewed by the need for self-enhancement. It permits individuals to maintain favourable views of themselves and their actions. Scholars note that those involved in terrorism often attempt to re-characterise their actions as legitimate, and may use their writings to put forth their ideology and tactical suggestions (Cordes, 1987; Ross, 2004).

Despite these concerns, autobiographical accounts have the potential to offer significant insight into the behavioural processes at any point in time during their life span, and can offer more revealing information than initially intended (Altier et al., 2014). Also,

reminiscence bumps occur in autobiographical memory recall due to the novelty and stability of event onset occurring in early adulthood (Rubin, Rahhal, & Poon, 1998). Events occurring in early adulthood have a higher chance of autobiographical recall in later life (Conway & Pleydell-Pearce, 2000; Pillemer et al., 1988; Rubin et al., 1998). Alongside this, it is also important to note that autobiographical data is often characterised by missing data and the availability bias (Crenshaw & LaFree, 2017; Safer-Lichtenstein, LaFree, & Loughran, 2017). Given the nature of the data, and the specificity of the items within the codebook, there is likely to be underreporting of specific indicators.

A final limitation is that the present analysis is not temporal. While the cluster analyses present trajectories over three distinct periods of the terrorist life cycle, there is no way to account for the sequence of indicators in the models. These analyses were also limited by the inherent complexity of examining both internal and external factors and how their presence and combination influence the onset of psychological distress. Almost 200 experiences were coded during the data collection, and every individual studied described a different trajectory, and combination of experiences throughout their life courses, leading to highly convoluted trajectories. This meant that when faced with every possible combination of experiences, identifying all important mediating factors for each individual was not possible.

It is also important to note that as the cluster solutions are not absolutes, we do not suggest our findings are applied to a set of cases as a categorical typology. Rather, as an exploratory analysis, we interpret the patterns spanning the offence trajectories as dynamic ‘styles of interaction.’ The results of which could inform subsequent confirmatory research designs, such as in more traditional hypothesis testing.

Conclusions

This research sought to expand on previous work by Corner and Gill (2019), who empirically identified the negative psychological impact of engagement in terrorist groups on a sample of over 90 group-based terrorists. These works focused on risk and protective factors, and highlighted a significant role for social bonds, and suggested that there is a subset of terrorists who despite engagement, do not appear to show psychological distress. However, both studies failed to interrogate the psychological mechanism of resilience. This study interrogated this research gap by examining resilience in a sample of group-based terrorists. Specifically, the results highlighted that psychological resilience may play a role in the recovery from engagement in a sub-set of terrorists, supporting other work in resilience research. The results also highlight the importance of circumstance and individual behavioural pathways, and provide implications for the individualisation of prevention and disengagement programs.

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