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Terrorism as altruism: An evolutionary model for understanding terrorist psychology

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Introduction

Terrorists are often portrayed as the lowest form of combatant, labelled as murderers, criminals and madmen. Yet, this view is counterbalanced by the fact that those who engage in terrorism do so as a small minority at great risk to themselves, and occasionally even intentionally sacrificing themselves for their war or cause. A suicide-bomber is viewed as psychotic; a regular soldier who leads his troops forward to near-certain death can be heroic. Are these two types of combatant really so different? This chapter presents a fresh model for understanding terrorism and terrorists within the context of altruistic behaviour. The chapter draws on evolutionary approaches to understanding altruism in general in human behaviour, outlining the dynamics that allow altruism to function and flourish. Specific insights and models are then applied to terrorism, providing insight into our understanding of the individual psychology of terrorists as well as the contexts in which terrorist groups can emerge. We will not provide a full exposition of evolutionary psychology, as other chapters in this book will address this. In addition, we do not pretend that all terrorism is altruistic (for any community), nor that altruism is the exclusive answer. Far from it, but we do contend that recognizing the altruistic dimension to terrorism is essential to fully understanding terrorism and, ultimately, moderating it.

The words ‘terrorist’ and ‘altruist’ rarely appear in close proximity. Instead, terrorists are usually presented as deranged or cowardly. Occasionally, they are seen as freedom fighters, but the very existence of the alternative term makes clear that the terrorist is not virtuous. Terrorism stands as perhaps the most reviled form of combat, threatened only by its close relative, suicide-bombing, in the revulsion stakes. Contributing to the outcast nature of terrorism is the general trend for terrorism engagement to be very much a minority activity, even in communities and conflicts where there is otherwise widespread support for their activities (Alonso et al. 2008). Yet, for scholars of terrorism, the adage that one person’s terrorist is another one’s freedom fighter is a well-grounded recognition of the vacuous assumptions about terrorists’ motivations. Engaging in terrorism is a costly activity, with life and limb on the line, suspension of a normal life – if this is even an option – inevitable and with little obvious gains to be made – the dreams of victorious triumph would seem unlikely to motivate any terrorist and the typical ongoing need to maintain a low profile prevents any immediate gains in community status as a pay-off. Why, then, do those who engage in terrorism do so?

If we move past the negative spin, we are free to look at terrorists and recognize that, as for any other human endeavour, various motivations, proclivities and perspectives will have contributed to people engaging in terrorism. Understanding these motivations is essential to turning down, if not off, the terrorism tap. And while much work has already been undertaken to examine the cues and motivations for terrorism engagement (e.g. Borum 2011; McCauley & Moskaleiko 2008; Moghadam 2003; Schmid 2013), the exercise for this present chapter is to examine the worth of applying a framework, evolutionary psychology, that is currently prompting a ground-shift in how general psychology interprets and studies human cognition and behaviour. And one of the central topics where evolutionary thinking has contributed important theory and empirical findings is in prosociality. In light of that, it seems worth examining the answer to the question: what can an evolutionary approach contribute to understanding terrorism as altruism?

Altruism and evolution

The issue of altruism arises very rapidly once an evolutionary framework is adopted for studying human behaviour for the simple reason that the framework, in its simplest form, focuses on the evolution of genetic traits through individual selection. Richard Dawkins's popular treatment of the fundamentals of evolutionary theory captured the challenge of altruism full-on with the chosen title of his seminal work on the topic, *The Selfish Gene* (Dawkins 1976). Individual selection is the process of competition between individuals within the same population for reproductive success. Those who do so successfully in relation to rivals will be responsible for transmitting a greater proportion of genes into the next generation. Fundamentally a simple yet elegant process, natural selection as so conceived requires only differential reproductive success in a population of organisms due to differing heritable traits to drive adaptation to the local environment. That is, there must be variation in traits, that variation must affect reproductive success and it must be heritable. Such a formulation suggests that selfishness should trump any altruism.

Of course, both in *The Selfish Gene* and elsewhere, Dawkins clarifies how altruism can still result from selfish genes, although, for many, the message was lost. Nonetheless, as far back as Darwin himself, the challenge of explaining altruism evolutionarily was readily apparent. While his own development of his theory of evolution by natural selection presented individual selection as the primary means through which the process of evolution occurs, he also acknowledged obvious shortcomings in the theory to address *prima facie* cases of altruism, such as in honeybees and human societies. He proposed group selection as a mechanism to explain these phenomena and the two mechanisms coexisted in a relatively unformalized relationship until the 1960s. Group selection proposes that the interactions within a group can contribute to reproductive success of group members if such interactions provide an advantage over competitor groups. Cooperative groups (or, if you prefer, groups of cooperators) therefore have a theoretical advantage, and in practice we would predict some balance between individual and group selection pressures dependent upon the relative strengths of said pressures.

Group selection fell from favour in the 1960s after a stinging critique (Williams 1966) and the development of a new framework, inclusive fitness theory, for examining the fitness consequences of social interactions (Hamilton 1964). In particular, a view arose that groups of altruists are always vulnerable to invasion by non-altruists, who would outcompete the altruists in any group, driving

altruism ultimately to extinction. Inclusive fitness focuses on the genetic success of any allele (a version of a gene, where a gene codes for a trait and an allele codes for a version of that trait) in enhancing its genetic success, which thus includes not just direct success through the allele's carrier (the organism) but also any success where the allele prompts the carrier to help other carriers of the same allele. Ironically, selfish genes can produce cooperative, even altruistic traits, something recognized in Dawkins's *The Selfish Gene*. Inclusive fitness became commonly referred to as kin selection after the suggestion that the process of inclusive fitness would only be felt among close relatives (Maynard Smith 1964) and this then constrained thought about altruistic behaviour for most until the recent decade or so. Kinship is an obvious channel through which such altruism can work, with an above-average probability of kin sharing a particular allele.

More recently, however, group selection has been restored to good favour through refined mathematical analyses that show that a multilevel selection framework (MLS; Sober & Wilson 1998), incorporating individual- and group-level selection, is equivalent to an inclusive fitness framework (Lehmann et al. 2007; Wilson & Wilson 2007). This recognition was important to countering the critique of altruist groups being unable to resist invasive non-altruists. MLS places explicit emphasis on population structure, in that individuals rarely randomly interact but more likely interact with subsets of the population and those restricted sets of interactions impact differentially on group members' fitness. Insofar as individuals who are altruists interact with others who are altruists, irrespective of how they find each other, then altruism can evolve if the process is sufficiently robust to being undermined by non-altruists' advantage. This is reminiscent of the earlier group selection framework, although modern incarnations have more nuanced models of the relationship between groups and reproduction.

This background is important to appreciate the complexities that surround an application of altruism to human behaviour in any domain, including terrorism. It does so because it points us to thinking about the evolved psychology that can be expected if altruism is a legitimate phenomenon, and not an illusion. The most important implication is that, while altruism could exist simply due to a group structure to human society, it is unlikely to do so because the extinction of groups as humans evolved would have needed to be substantial (alternatively, highly restricted migration would facilitate evolution of altruism but that also is very unlikely). However, altruism can exist due to the group structure in human society provided some additional mechanisms are in place that buttress altruism against exploitation. Where this potentially intersects with terrorism lies in the issue of exploitation.

The recent literature on human social behaviour, and particularly human group behaviour, has grown dramatically, stimulated in part by the flourishing debate around altruism. Much of this work has focused on the scaffolding that allows cooperation to function in human societies, and particularly given that cooperative behaviour often occurs in apparently anonymous situations, or interactions with strangers. We acquire goods where one party pays before receipt of goods, or vice versa. We donate money to strangers having limited proof of their genuineness. People are hired on limited proof of who they are and what they have done previously. Taxi-drivers take people places before being paid. Companies often provide a complaining customer with a replacement product without verifying whether the previous item was actually broken. The opportunities for exploitation are rife, yet, while exploitation does happen, it is perhaps noteworthy for how little it happens. How can societies function in the face of their vulnerability to exploitation? The answer may lie in the

mechanisms that we have evolved, some possibly group-selected, to deal with protecting our altruism more generally.

Consider studies that show that when participants in an economics experiment are asked to make contributions to a common pot (a 'public good') that yields a benefit to all players at a cost to a contributing individual, they often initially do so at a moderate level, beyond what seems 'rational'. As they learn the ropes of the game, and particularly as they see the decisions of other players, however, they gradually make lower and lower contributions. Is this a microcosm of the 'tragedy of the commons', a defence against exploitation? Indeed, but a defence played out in a very odd format. These are games played (usually) via computer, in anonymous groups where no one is sure of whom they are playing with, with no means to deviate from the preset structure of either contributing a share of points to the public pot, or withholding. In the face of seeing some contribute less, what other response seems reasonable than to withdraw?

In actual society, however, this is not how things operate. More importantly, in the likely societies that humans and our ancestral forms created over our evolutionary time period, the above is not how things would have worked. Instead, our ancestors would have been part of a community of individuals who regularly interacted, and likely had a sense of 'their own community' or at least their own group. They would have recognized group members, they would have known their ways, and they would have for at least our more recent past had the ability to gossip and spread information about behaviour to others. Groups would have been able to coordinate activity to regulate the behaviour of troublemakers, seeking to constrain their harmful ways or expel or even kill them (Boehm 1999; Boehm 2000; Boehm 2012). Boehm has extensively researched how hunter-gatherers regulate behaviour within groups and has found that there is an escalating series of steps that communities tend to follow, beginning with teasing and light banter about inappropriate behaviour, escalating to confrontation, ostracism (temporary or permanent) and, more rarely, assassination (for more serious transgressions). It is not hard to see this reflected in our own modern social ways, even at the level of complex urban populations, where newspapers and twitter serve as channels of information flow (read: gossip), and allow coordination of activity (think of the Arab Spring). Fear of gossip itself is often enough to regulate negative behaviour (Ellickson 1991; Kniffin & Wilson 2010). More formally, there is a judicial system which incarcerates wrongdoers but not so long ago such individuals were often cast out ('outlaws'; an outcome still followed often for non-citizens). Finally, some countries even today still retain capital punishment for extreme crimes.

Thus, human societies at all levels have mechanisms to deal with those who violate expected behaviour. In addition, societies generally have a shared sense of appropriate behaviour, and a conceptualization of right and wrong behaviour: morality. Much of this can be seen as scaffolding to support cooperation and altruistic endeavour in human societies, and appears to be supported by evolved psychological dispositions that in turn support such cultural mechanisms. A variety of research programmes show that, psychologically, people respond to various cues and situations in line with what we would expect theoretically if we have evolved to facilitate cooperation and regulate cheating. These include sensitivity to vigilance of us by others, gossiping when behaviour is inappropriate, and punitive responses to antisocial behaviour, particularly selfish behaviour. These psychological responses not only underpin altruistic behaviour, but provide the emotionally driven motives to respond to perceived transgressions, likely a key motivator in terrorist activity (O'Gorman 2011).

Evidence that our prosocial behaviour is readily impacted by relatively crude cues to the social dimension of our behaviour comes from work on the impact of reputational concern on contributions in public goods games. Researchers have found that the presence of eyes adjacent to where participants were being presented with opportunities to either contribute prosocially or withhold resulted in greater contributions to the (experimental) social good (Haley & Fessler 2005; Sparks & Barclay 2013). Public goods studies serve as the arena for understanding our propensities to punish, alongside our tendencies to cooperate. Fehr and Gächter (2002) found that if participants could punish other players for their low contributions, then contributions do not collapse over time (as discussed earlier) but remain at more substantial levels. Fehr and Gächter, along with a raft of related studies (e.g. Herrmann et al. 2008; Gintis 2008; Eldakar et al. 2006; O’Gorman et al. 2009; Henrich et al. 2006), show that cooperative behaviour is viable, even if in an anonymous situation, if there are mechanisms that can regulate selfish behaviour. More important for our present thesis, they showed that people would actually incur a cost to punish another player: Punishing another was not free. As O’Gorman et al. (2009) show, this even occurs when only one player in a group is designated for a round as a punisher, thus shouldering the entire cost.

While researchers debate whether this can be legitimately called ‘altruistic’ – because we cannot be sure that players are not mistaken about the public goods games’ conditions, or because they have a vested interest in punishing (Pedersen et al. 2013) – it shows that people will pay a cost (both relative and absolute) to punish. What this stream of research has not particularly addressed, though, is whether there are individual differences in willingness to engage in punishing behaviour. Certainly there is variance in levels of punishing that occur, though whether this is behavioural noise or is related to individual dispositions is not known. There does appear to be evidence that some participants operate in what has been termed as spiteful punishing, punishing high contributors (Herrmann et al. 2008). What has been shown is that individuals do vary in their willingness to be altruistic. For example, Van Lange et al. (1997) developed the social values orientation scale as a measure of people’s dispositions toward being individualistic (maximizing individual gain), prosocial (maximizing collective gain) or competitive (getting the bigger share, even if losing out on a larger amount). They show that these different strategies are distributed through the population with prosocials dominating, but with non-trivial numbers of individualists and competitive types. Kurzban & Houser (2001) found a similar pattern of participants whose behaviours in an economic game could be decomposed into three categories, which they termed strong free riders, conditional cooperators of reciprocators, and strong cooperators, though the proportions differed somewhat from Van Lange et al.

Together, these mechanisms show that humans are equipped to respond to transgressions and violations of morality at a personal cost. But it may seem one thing to want to pay a few pennies to punish another player, a different thing to want to detonate a bomb with the intention of killing and maiming. Yet the idea here is that the lab captures as a microcosm the reality of the world writ large. A small transgression yields a small retribution. With larger transgressions we may expect larger responses. Calibrating responses to transgressions, evidence suggests, is the role of emotions (Damasio 1994; Haidt & Kesebir 2010; McCullough et al. 2013). One of the key developments in understanding human behaviour has been the recognition, driven by a variety of studies, showing that emotions and what might be termed unconscious thoughts shape how we respond to various situations. In particular, these responses occur in response to fundamental aspects of daily life in the area of morality and normative behaviour. Key work in this area is summarized by Damasio (1994),

showing the importance of emotions for making socially appropriate judgements. Damasio demonstrates his thesis through an exploration of various forms of damage to the frontal lobe of the brain, arguing that, without emotional input, individuals do not act in accordance with normative behaviour. Critically, this shows that emotions shape many of our activities and decisions. Expanding on this basis, Haidt (Haidt & Kesebir 2010; Haidt 2008; Haidt 2007) has demonstrated that emotions and intuitions are central to how people make moral judgements. In turn, the implication is that these emotions are shaped by human evolution to prompt behaviours and decisions that yield evolutionarily adaptive outcomes. Insofar as people are entrained by their emotions and intuitions, a strong emotional response can be expected to beget a strong action, at least from some individuals. We argue those will be the prosocials, the strong cooperators, the altruists, choosing to act on behalf of their community.

It is important to revisit at this stage in the argument that the evolution of human social behaviour would have centred on the fact that we lived in small communities of familiar individuals, many of them kin. As such, issues of justice and morality would have revolved around transgressions by members of the community, a neighbouring community, or strangers. The abstract nature of political states is not something that humans think upon very effectively, just as we struggle to work with percentages rather than frequencies (Galesic et al. 2009; Hoffrage et al. 2000). The notion that the actions of a transgressor in the political arena may be the result of complex internal dynamics is lost on many. From an evolutionary perspective, we would expect that humans thus react today to transgressions as though operating in a more intimate world. Moreover, individuals may be cued by their own pain at the transgressions, or by the pain of those they consider close to them. They may be shaped in how they think about this rationally by their culture (O’Gorman 2011), but ultimately we expect that their emotions and intuitions drive their decisions. This may be most notable when deciding whether and how to respond to the transgressions, with emotions running strong.

When the situation has moved past teasing, gossip, or even some level of ostracism, or such responses would not work, individuals are predicted to respond with violence on at least some occasions. Not every dumped lover kills their ex-partner’s new beau, but enough do that we know it is a possible outcome in such situations. The majority of homicides for any country show that those with an emotional component (argument, anger, revenge) dominate the numbers (Daly & Wilson 1988; Dooley 2001). For terrorism, revenge is a particularly salient motivator, given the typical delay between any ascribed cause for terrorism engagement and acts of terrorism. Various studies in countries such as Ireland, Australia, and Hong Kong suggest that about 10 per cent of murders are due to premeditated revenge (where there is evidence of planning); this expands to up to 20 per cent of homicides if more impulsive acts of revenge are included (McCullough 2008). Indeed, McCullough (2008) suggests 20 per cent may be on the conservative side, as many murders are motivated by sexual jealousy or sexual infidelity, some of which also have a revenge component to them. For some cultures, those which have a culture of honor (Nisbett & Cohen 1996), revenge may be a particularly salient response to insults and transgressions (O’Gorman 2011).

One shortcoming in the literature on costly punishment is whether age or sex play a role. In O’Gorman et al. (2009), a study that explicitly examined for sex differences, none were found. The structure of public goods experiments may liberate women to punish in a way that real-life affords much less, and experimental demand may prompt action in a way that other situations might not. However, other literature that looks at punishing sometimes find that women resort less to physical

violence than men (Eldakar et al. 2006), but this is not consistently so (O’Gorman et al. 2005). Archer (2004) in a meta-analysis of sex differences in aggression across all social settings reports that there is little evidence of sex differences in anger in social conflicts, but men are more likely to injure and to engage in physical aggression. In addition, men, and particularly younger and single men, are much more likely to engage in physically risky behaviour, including aggression, violence and homicides (Daly & Wilson 1988; Daly & Wilson 1994). This is due to risky behaviours in general allowing males to show off their potential mate quality to females, combined with males having the less certain reproductive strategy (females are generally the choosy sex among mammals, having higher costs for poor mating choices). However, while risk-taking behaviour may be a factor for some males to engage in terrorism, it will not necessarily have a relationship to moralistically driven actions.

And so, turning to the terrorism literature, do we see these mechanisms at work? A critical starting point when considering terrorist psychology and motivation is the realization that the vast majority of psychological research on terrorists has concluded that they are not abnormal or suffer from higher rates of psychopathology. Indeed, many studies have found that terrorists are actually psychologically much healthier and far more stable than other violent criminals (e.g. Silke 2008). Taylor and Qualye (1994) provide a frank overall assessment of terrorist psychology which is worth bearing in mind:

With rare exceptions and contrary to popular misconceptions ... terrorists are neither madmen nor blind bigots. They have considerable insight into their own actions, and often show a striking awareness of how others view them. In the main, they have come to terms with the violence they commit, and are able to justify it in terms of their own perception of the world, and their role in its maintenance. For example, few object to the use of the term terrorist to describe themselves, although euphemisms such as volunteers or members are generally preferred descriptions. Relatively few individuals offer sophisticated political justifications of the violence they may admit to or imply being involved in, yet all show a strength of what can only be described as belief in the rightness of their actions (Taylor & Qualye 1994, p. 103)

Victoroff (2005) notes that ‘it seems plausible that many terrorists act in a prosocial manner, both believing themselves to be serving society and judged by their in-group to be acting in its interest’. In considering key differences between terrorists and criminals, LaFree and Dugan (2004) highlight that one essential and common difference is that ‘those partaking in terrorism are more likely to have a self-perception of altruism’. Certainly surveys of terrorist and criminal prisoners, for example, find that the terrorists express a very different view of the motivations for their offending compared to the typical criminal prisoner (e.g. Crawford 1999).

Identity tends to play a major role in terrorist motivation and this also directly linked to how we can think about altruism in a terrorist context. The more strongly an individual identifies with another person (or group of people), the more strongly they will react emotionally to events in that person/group’s life. They will feel positive emotions when things go well for the person they empathize with (Smith et al. 1989), and negative emotions when things go badly (Hoffman 1991). These negative emotions include sadness, but also importantly can include anger (Vitaglione & Barnett 2003).

Altruistic tendencies can be increased by stressing similarities with others. The stronger a person can identify with others the more they care about what happens to those others (Levy et al. 2002). In contrast, efforts which stress the differences weaken such bonds and interest and concern declines. A further important factor in limiting altruistic tendencies is that in order to act or think altruistically, one first needs 'the ability to assess and influence others' welfare' (Farsides 2007). If an individual is burdened with extreme demands on their own time, energy and resources, then they are much less likely to be able to show the awareness that altruism requires (Evans et al. 2005).

Thus the capacity to exercise altruistic tendencies here links in with many of the theories regarding poverty and deprivation and terrorism. It is widely recognized that most terrorists do not come from the most deprived backgrounds of their constituent communities and that on the contrary they are more likely to come from what constitutes the middle and upper classes of their communities (bearing in mind that the middle class in a refugee camp will be very different to the middle class in a British city) (Maleckova 2005). Surveys have also found that support for terrorism tends to be stronger among middle-class and upper-class respondents than among the lower class. For example a survey of 1,357 Palestinian adults in the West Bank and Gaza found that support for terrorism against Israeli civilians was more common among professionals (43.3 per cent) than among labourers (34.6 per cent). Similarly, there was more support among those with secondary education (39.4 per cent) than among illiterate respondents (32.3 per cent) (Krueger & Maleckova 2002). Interestingly, further research has found that in the Middle East, respondents who owned a computer or mobile phone were more likely to express support for terrorism than respondents who did not own these items (Fair & Shepherd 2006). This last result may be related to the relative deprivation factor and/or to an increased awareness of others with a shared identity.

Altruism then is likely to have an impact on support for terrorism when it is considered within the context of identity. Individuals who feel their identity is closer to the militant group, and who score higher on altruistic measures, are arguably the ones who will express and feel the strongest support for the group including the group's use of extreme measures. Potentially, they will also be more likely to act on these sentiments.

What is certainly widely accepted in the literature is that terrorists usually view and portray themselves as acting in an altruistic fashion. Though their numbers are very few in terms of the wider communities they are drawn from, the organization and individuals typically emerge from an enabling environment where they share a wider sense of injustice and grievance (e.g. Alonso et al. 2008). The terrorist movement itself usually presents itself as a self-declared vanguard representing the interests of the aggrieved. Thus, while there are very few actual terrorists, they claim a far wider representation and that they are fighting on behalf of the Umma, the proletariat, the nation, or whatever other constituency is advocated within their specific ideology. It is in such terms then that the violence is typically explained and justified. A good example of this is the rationale provided by Eric Rudolph who was responsible for bombing the Atlanta Olympics in 1996 as well as attacks against several abortion clinics in the US:

Because I believe that abortion is murder, I also believe that force is justified in an attempt to stop it ... There is no more fundamental duty for a moral citizen than to protect the innocent from assault. This [is] inherent in the values of all higher civilizations. You have the right, the responsibility and the duty to come to the defence of the innocent when the

innocent are under assault ... [I]f you ... recognize abortion is murder and that unborn children should be protected and you still insist that force is unjustified to stop abortion, then you can be none other than cowards standing idly by in the face of the worst massacre in human history.

This theme of fighting on behalf of others and in reaction to the suffering of others appears to be almost a constant in terrorist ideology and recurs frequently in accounts of the personal motivation of individual terrorists. Consider the following from a left-wing Italian terrorist:

our lives too could be sacrificed in order to reach an ideal; a high price for any ideal, but this seemed to be the price the situation required ... It was a life so oriented towards a presumed sacrifice-for-others as to include the sacrifice of some and of course of oneself. (de Cataldo Neuburger & Valentini 1996, p. 161, emphasis added)

Such themes clearly echo within the context of modern Jihadi extremism. Consider Mohammad Sidique Khan, the leader of the suicide bombers responsible for the 7 July 2005 attacks in London, who in a video filmed before the attack said:

I and thousands like me are forsaking everything for what we believe. Our driving motivation doesn't come from tangible commodities that this world has to offer. Our religion is Islam – obedience to the one true God, Allah, and following the footsteps of the final prophet and messenger Muhammad ... This is how our ethical stances are dictated. Your democratically elected governments continuously perpetuate atrocities against my people all over the world. And your support of them makes you directly responsible, just as I am directly responsible for protecting and avenging my Muslim brothers and sisters. Until we feel security, you will be our targets. And until you stop the bombing, gassing, imprisonment and torture of my people we will not stop this fight. We are at war and I am a soldier. Now you too will taste the reality of this situation.

That said there is still clear acceptance that the reasons why individuals become involved in terrorism are varied and do not boil down to just one factor, whether that is some form of altruism or another factor. Overall, terrorists are a very heterogeneous group and the range of people who become involved is vast. They can vary hugely in terms of education, family background, age, gender, intelligence, economic class, etc. Consequently the manner in which they became a terrorist can also vary, and factors that played a pivotal role in one person's decision to engage in terrorism can play only a very minor role for others, or indeed may have played no part at all.

Becoming a terrorist is for most people a gradual process and is not usually something that happens quickly or easily. Ultimately, it is the combined impact of a number of factors that push and pull the individual into becoming a terrorist, and these factors will vary depending on the culture, the social context, the terrorist group and the person involved.

Perceptions of grievance and a desire for revenge can be powerful motivations in any situation. Indeed, evolutionary psychologists sometimes explain this in terms of a response to a threat to perceived social status; value of social status is something that has evolved in humans and other primates because of its strong association with sexual selection. Competition for social status can lead to intense, and often violent, behaviours, usually in adult males (Gottschalk & Ellis 2009).

Psychologists have also shown that the individual seeking revenge demonstrate higher levels of goal fulfilment when they see their perceived offender suffer, and that the offender's understanding of why the revenge was sought is even more important (Gollwitzer & Denzler 2009).

Certainly a desire for revenge has been found to be a key factor in the radicalization process for many, if not most, extremists. Radicalization has been explained in terms of a perceived threat to the in-group (McCauley & Moskaleiko 2008) – and here again the importance of group identity is highlighted – and so grievance and revenge motivations are important drivers of individual decisions to become involved in militant activism as well as motivating those already involved into action. Catalyst events (i.e. violent acts which are perceived to be unjust) provide a strong sense of outrage and a powerful psychological desire for revenge and retribution (Silke 2003). Significantly, these catalyst events do not need to be experienced first-hand to have this effect. For many individuals witnessing such events vicariously on television, the Internet or in propaganda, etc., can have an equally powerful impact and can provide a strong motivation to become involved. Many terrorists report that they first joined the organization after witnessing events on television. They did not come from the area where the events occurred – or indeed even know the people who lived there – but at some level they identified with the victims. In this way it can be seen that two powerful psychological processes – identity with a particular group and a desire for revenge when it is perceived that this group, or the status of this group, is threatened or has been treated unjustly – combine to help compel the individual to join a terrorist group in order to redress the balance. Both elements tie in to thinking on how altruism may play a role. Consider the following account from Sean O'Callaghan (1998, p. 22) a former member of the Provisional IRA. O'Callaghan lived in the Republic of Ireland and had never been to Northern Ireland until after he joined the IRA.

I was sitting watching television along with childhood friends ... when the news clearly showed Royal Ulster Constabulary (RUC) officers brutally attacking Civil Rights marchers in Derry. We saw RUC officers kick, punch and baton completely defenceless and peaceful marchers. We were totally shocked by the naked hatred and violence of some of the police ... That event had a huge effect on me. All of my sympathy was with the marchers and I formed the opinion there and then that the RUC were a totally bigoted police force on a par with the Nazis ... My two friends and I ... were all to join the Provisional IRA.

Conclusion

We do not suggest that there are not other psychological processes that are relevant to terrorism, and particularly to engagement with terrorism. Fundamentally, people are equipped to respond to transgressions with calibrated responses, with more harmful transgressions prompting stronger emotional response, which in turn can be expected for some to translate into violent action, or certainly support and facilitation of such action. Certain cultures may exacerbate such responses, and individuals will vary in their proclivity for seeking to punish those who have wronged them, as they perceive it. In situations where terrorism is a viable option, then turning to a terrorist structure is one pathway to revenge. Once engaged in a terrorist structure, of course, other mechanisms and processes can shape continuing engagement. For some, the revenge desire may continue to burn strong, for others the organization may need to stoke the flames, while for others, membership of the organization and subordination to its goals may be enough to maintain their engagement.

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