Persuasive Narratives and Costly Actions

Giti Zahedzadeh[a], Jorge A. Barraza[a] & Paul J. Zak[a]

[a] Center for Neuroeconomics Studies (CNS), Claremont Graduate University, Claremont, California, USA
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GITI ZAHEDZADEH, JORGE A. BARRAZA, AND
PAUL J. ZAK

Center for Neuroeconomics Studies (CNS), Claremont Graduate
University, Claremont, California, USA

Persuasive narratives can induce some individuals to engage in costly actions. Entrepreneurs of suicide missions frame the necessity of violent behavior within the context of persuasive narratives to attract potential recruits. Herein we report results from an experiment to test factors involved with costly action linked to a persuasive narrative. We recruited 164 participants (M = 21, SD = 5.20) and measured hormones, electrodermal activity, and personality to predict who would be influenced by the narrative's message. We found that the persuasive narrative we tested resulted in costly action by those who are high-perspective takers and are more physiologically aroused by the narrative. The findings fill lacunae in the literature, providing a novel approach to examine costly behavior (like martyrdom missions) in the laboratory.

Keywords costly actions, motivation, perspective taking, persuasive narratives, suicide missions

While the strategic calculus of the organizers of suicide missions can be explained in *Rationalist terms*, the decisions of those who become candidates for an act of voluntary death are vexed, given the high premium on survival as the ultimate rational end.[1] What induces individuals to engage in costly conduct and in some cases the intentional killing of themselves? The rational choice model makes it difficult to incorporate emotional factors; however, the act of voluntary death suggests that the emotional component of sacrifice must be substantial.[2] Berman and Laitin[3] argue that members of radical organizations exhibit self-sacrificial behaviors due to a belief that the suicide mission will benefit their community or some larger cause. Suicide operations are regarded as legitimate by the recruits, but seem irrational and incoherent to an outside observer. It has been widely speculated that devotion to certain religious beliefs may facilitate support for suicide attacks,[4] promise martyrs an eternal place in heaven,[5] promise future heavenly rewards,[6] or contain narratives that glorify acts of combative martyrdom,[7] thus making their cost-benefit analysis a rational choice. Once contextualized within a narrative framework understood by the intended recipients, one can gain a better understanding of suicide terrorism.

Narratives can be powerful. A narrative is "a system of stories that share themes, forms, and archetypes."[8] Narratives are social products manufactured by individuals within the context of distinct historical and cultural locations,[9] making them important to the construction of identity.[10] Velleman[11] argues that our response to a narrative is mainly emotional. Casebeer and Russell[12] assert that "stories influence our ability to recall events, motivate people to act, modulate our emotional reactions to events, cue certain heuristics and biases, structure our problem-solving capabilities, and ultimately perhaps even constitute our very identity." Some narratives, whose stories are extensively known in a culture and are reiterated over time, ascend to the level of "master narratives" (a transhistorical narrative that is deeply embedded in a particular culture), and are so profoundly engrained that they can be invoked by the mere utterance of words and phrases.[13]

Narratives can be poignant, tragic, and efficacious. Persuasive narratives can tell the story of the suffering of those with whom one identifies, and discredit evidence of the harm they may cause on the path to achieve a perceived higher goal. McCauley and Moskalenko[14] argue that the foundation of intergroup conflict is the human capacity for group identification, coupled with perceived group victimization, crossing national and ideological lines, and serving as a steady source of motivation. In extremist rhetoric, Muslim master narratives are used "strategically as templates for interpreting local events in their terms."[15]

Sentiments elicited by a narrative can motivate narrative-congruent actions, some of which can be costly. In the present study, we use a persuasive narrative followed by a charitable donation decision as an indicator of narrative influence. In order to understand why narratives can induce costly action, we measured activity in the peripheral nervous system. We argue that both narrative and acts of charity can lend themselves to studying, in a laboratory setting, underlying processes involved in difficult areas such as suicide terrorism. It is important to note that while we recognize the large leap between charitable giving and martyrdom missions, we hope that this paper serves as a starting point for utilizing the approach we describe here.

Martyrdom and Charity

The term "martyr" means "the witness." It denotes one who testifies to the truth of a statement or important course of events by dying rather than denying.[16] Martyr narratives serve as catalysts in social mobilization.[17] The self-immolation of Mohammed Bouazizi, a local Tunisian vendor in an act of defiance against a corrupt autocratic regime, made him the patron martyr at the heart of the Arab Spring. The Arab uprisings created novel stories *vertically integrated* with long-held cultural narratives that valorize self-sacrifice for a cause.[18] In the Palestinian territories, acceptance and celebration of martyrdom is apparent from childhood on, as evidenced by photographs of infants and children with toy bomb-belts.[19] In interviews with intended Palestinian suicide bombers, almost all indicated that it was in the mosque that they first heard of the manner in which their parents' property had been taken, when they were set on the path of martyrdom.[20]

The path to martyrdom may selectively disengage a person from actions to be committed through linkages to worthy and moral causes. People justify the rightness of their actions to themselves, and what is culpable can be made righteous through

cognitive reconstruction.[21] In this process of moral justification, detrimental conduct is made personally and socially acceptable by portraying it in the service of valued social or moral purposes,[22] and then that conduct is perceived as having a moral imperative.[23]

Although they may seem dissimilar, charitable organizations also persuade individuals to make donations that are costly for the donors. The leverage of a charitable appeal seems likely to increase with the individual's ability to identify with the people in the narrative and the faculty to empathize with their plight.[24] Likewise, group identification appears to motivate acts of terrorism. Membership in a terrorist organization provides the opportunity to harm those who are perceived to be the perpetrators of injustice, to make right what is perceived as unjust while stripping the group members of personal responsibility for using violence as an instrument.[25] Group forces, such as ideological indoctrination, can influence the group's violent behavior, whether or not individual members were predisposed to such behavior themselves.[26] In Islam, charity is a religious obligation,[27] which prescribes payment of fixed proportions of a Muslim's possessions for the welfare of the entire community and in particular for its impecunious members. While the primary motive of charity is religious and spiritual, its social significance is that it awakens in people a sense of brotherhood with less fortunate members of the society and stirs one's moral conscience to make sacrifice for their sake.[28] Martyrdom may be interpreted as an act of charity. Using an influential narrative leading to a costly behavioral outcome can serve as a proxy for examining phenomena involved in self-sacrificial acts that are believed to benefit others. In this study we use a fund-raising appeal where participants' donations may help a cause addressed in the narrative. Since individuals may respond differently to a persuasive narrative, their engagement and the subsequent impact on behavior may vary.

The Current Study

Applying laboratory techniques to the study of terrorism can contribute to finding reliable indicators that can be used to mitigate the prevalence of suicide missions. Physiology in response to a persuasive narrative produces a cascade of physiological activity that may be captured using neurological measurement techniques.[29] In this experiment, we measured cortisol (CORT) and adrenocorticotropic hormone (ACTH) as well as peripheral neural activation. CORT is released in response to stress and has profound effects on mood and behavior.[30] ACTH helps maintain performance over time[31] and increases visual attention.[32]

We also recorded electrodermal activity (EDA) to assess changes in sympathetic tone (arousal). EDA assesses the variation in the electrical properties of the skin in response to sweat secretion by eccrine glands. Changes in EDA have been associated with attention and have become an important tool in studying affective processes[33] and cognitive states.[34] We used EDA to examine arousal responses that may occur in response to the narrative without conscious awareness, and to investigate attention, where salient stimuli evoke an increased electrodermal response.

Using a General Population in Examining Terrorist Processes

Personal traumatization can manifest in post-traumatic stress disorder (PTSD), exacerbating the motivation for martyrdom.[35] Several studies have shown that

war and consistent political violence are associated with higher incidence of PTSD,[36] which can also be associated with feelings of helplessness.[37] Nevertheless, most terrorists do not meet diagnostic criteria for a major mental illness and are not sociopaths.[38] Middle Eastern terrorists in the late 1990s and early 21st century come from a wide demographic range including university students, professionals, and young women.[39] For instance, the 9/11 terrorists included Mohammad Atta, a student of Urban Planning in Germany, and Ziad Jarrah, from an affluent family who enjoyed beer and parties.[40] A majority of suicide volunteers are psychologically healthy and lack suicidal symptoms; they generally *do not* express hopelessness or a sense of nothing to lose.[41] Considering the *normality* and absence of individual psychopathology,[42] we recruited participants from the general population for the present experiment.

Method

Participants and Procedure

One hundred and sixty-four students from liberal arts colleges in Southern California (54% female) participated in this study. One participant's data was lost due to a computer malfunction leaving a final sample of 163. Participants were racially diverse, self-identifying as White (50%), Asian (14%), Latino/Hispanic (4%), African American/Black (4%), Middle Eastern (2%), and mixed ethnicity/other (25%). Participants were recruited by email, and written consent was obtained prior to inclusion. There were no adverse events. The experiment took one hour to complete with four people participating at a time. Participants were informed that they earned $15 for participating in the study and would be able to earn an additional $25 if they answered questions related to the video correctly (e.g., ''Who was narrating the video?''). After answering these questions, computer software counted their correct responses and calculated their total earnings. Participants were asked to refrain from consuming alcohol and illicit drugs for 24 hours prior to entering the lab. After consent, 18 ml of blood was drawn from an antecubital vein by a qualified phlebotomist to establish basal hormone levels. While waiting for the blood draws, participants completed surveys that assessed their traits, attitudes, and psychological states. Personality measures included Davis'[43] Interpersonal Reactivity Index (IRI), Geuens and Pelsmacker's[44] Short Affect Intensity Measure, and the ''Big Five'' personality dimensions.[45] All measures were on a seven-point Likert-type scale. Participants were then fitted with two EDA electrodes on medial phalanx surfaces of the middle and index fingers of the non-dominant hand. Participants were then taken to appropriate laptops, had headphones placed on their heads, and were then asked to sit quietly for 5 minutes in order to obtain baseline autonomic nervous system (ANS) measures. During the 5 minutes, they viewed neutral pictures. Thereafter, they watched a 100-second video of a father who has a 2-year old son named Ben dying of brain cancer. The clip was part of a longer video St. Jude's Children's Research Hospital used for fundraising.

Post-stimulus, participants were asked to rate their emotions using 12 adjectives previously used to assess empathy toward others and personal distress.[46] Immediately after these ratings, they received another 18 ml blood draw. Next, participants were asked five questions related to the narrative in order to earn additional money. This task provided participants with a sense of earning money rather than have been

given a windfall. Finally, participants were informed that the story viewed was produced by St Jude Children's Research Hospital. The information was followed by an option to donate none, some, or all of their participation earnings to support research at the hospital. Donated money was sent to the charity at the conclusion of the study. Each participant's donation served as an objective measure of narrative persuasion. At the end of the study, the participants were debriefed and were given their earnings in private. There was no deception in this study.

Hormone Assays

Once the blood was drawn, it was immediately put on ice, and then spun in a refrigerated centrifuge at 4°C for 12 minutes at 1500 RPM following the protocol in Zak et al.[47] Blood serum and plasma were separated into 2 ml microtubes and immediately frozen on dry ice. Microtubes were stored in a −80°C freezer until being transferred to USC Reproductive Endocrine Research Laboratory on dry ice for assays. OT was assayed with an RIA with extraction from Bachem (Torrance, CA), CORT was assayed by LC-MS with material provided by CDN Isotopes (Pointe-Claire Quebec, Canada), ACTH was assayed with an RIA kit from DiaSorin (Stillwater, MN, USA), and T was assayed with an RIA kit from ALPCO, Inc. (Salem, NH).

Electrodermal Activity Analysis

Electrodermal activity (EDA) sensors wirelessly sent data to BIOPAC MP150 data acquisition systems for Windows (BIOPAC Inc., Goleta, California). BIOPAC produced measures of skin conductance and were interfaced with a computer responsible for stimulus presentation. Data were initially analyzed in Acq*Knowledge* and with extended analyses done in Stata. Two variables were derived from EDA, nonspecific skin conductance response (NS-SCR; a phasic measure of electrical conductivity of skin) and skin conductance level (SCL; a tonic measure of electrical conductivity of skin). The NS-SCRs has been reliably linked to physiological arousal,[48] and studies have demonstrated that this measure accompanies brain activity in regions associated with attention and emotion.[49] Skin conductance rate covaries with the arousal dimension of affect, indexing its intensity.[50] SCL, on the other hand, is a tonic measure of skin conductance across a period of time that can be computed as change from one time point to another. A change in SCL is regarded as a marker of sympathetic nervous system activity.[51]

Results

Behavior

A majority of participants made donations (54%) from their study earnings. The average donation was \$3.73 (range = \$ 0 – \$40, $SD = 6.18$). The average earning from the experiment was \$33.79 ($SD = 6.57$). We will call individuals who made donations Responders (Rs), and those who did not donate Non-Responders (NRs). A one-way ANOVA confirmed that there were no gender difference in donations (Male: $M = 3.69$, $SD = 6.75$; Female: $M = 3.83$, $SD = 5.55$; $F(1,154) = 0.04$, $p = .84$).

Endocrine Response

Basal levels of hormones were within normal range for all participants.[52] Average values are as follows: CORT $M = 15.58$ ug/dL, $SD = 7.78$; ACTH $M = 38.79$ ug/dL, $SD = 22.76$. Basal hormone levels do not differ between Rs and NRs (CORT $p = .845$; ACTH $p = .70$). For all participants, narrative exposure led to a 17% decline in CORT ($p < 0.001$). There was also a trend toward an increase in ACTH ($p = .15$). The percentage change in CORT (t (151) = 1.55, $p = .12$) and ACTH (t (149) = −0.41, $p = .68$), between Rs and NRs was not significant.

Personality and Emotional Experience

Two tailed t-tests were used for personality differences and self-reported emotional experience of the narrative. We found that Rs were more agreeable (R: $M = 4.94$, $SD = 1.13$; NR: $M = 4.53$, $SD = 1.26$; $p = .03$) and were higher on empathic concern (R: $M = 5.36$, $SD = 0.85$; NR: $M = 4.88$, $SD = 1.11$; $p = .002$) and perspective taking (R: $M = 5.09$, $SD = 0.82$; NR: $M = 4.72$, $SD = 1.0$; $p = 0.01$) than NRs. After narrative viewing, Rs reported greater concern (R: $M = 5.80$, $SD = 1.27$; NR: $M = 4.52$, $SD = 1.43$; $p = .01$) and personal distress (R: $M = 5.76$, $SD = 1.06$; NR: $M = 5.33$, $SD = 1.18$; $p = .02$) for the people in the narrative. We also found that Rs were more motivated than NRs to act in order to help the organization sponsoring the narrative (t (154) = −3.98, $p < .001$). We found that the percentage change in CORT was positively associated with personal distress ($r = 0.15$, $p = .05$) (see Figure 1) but not with empathy ($r = −0.09$, $p = .25$) or perspective taking ($r = −0.06$, $p = .41$).

Across all participants, the average rate of NS-SCR increased from baseline (M1) to watching the narrative (M2) ($M1 = 0.71$, $SD = 1.16$; $M2 = 2.78$, $SD = 3.04$; $p < .001$). There was no significant difference between NS-SCRs of Rs and NRs at baseline (t(154) = −0.73, $p = .46$), or during the narrative (t (154) = −0.37, $p = .70$). However, a two-tailed t-test confirmed that the percentage change in NS-SCR from baseline to narrative was larger for Rs ($M = 2.67$, $SD = 3.04$) than for NRs ($M = 1.11$, $SD = 3.42$; t (149) = −2.97, $p = .003$)] (see Figure 2).

Across all participants, the average SCL increased from baseline (M1) to watching the narrative (M2) ($M1 = 7.01$, $SD = 1.77$; $M2 = 16.47$, $SD = 1.67$, $p < .001$).
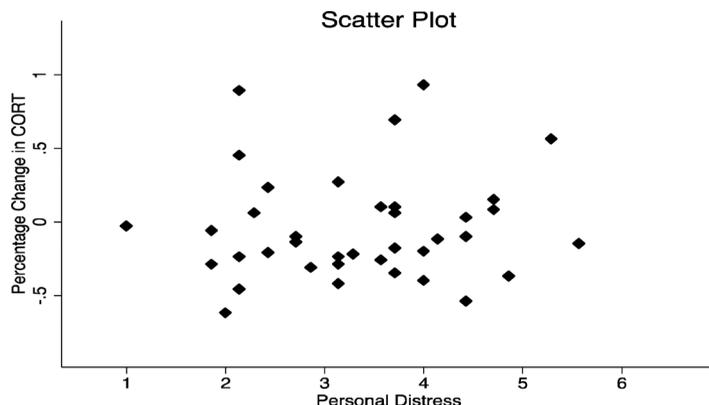

Figure 1. Two-way scatter plot of personal distress and the percentage change in CORT.
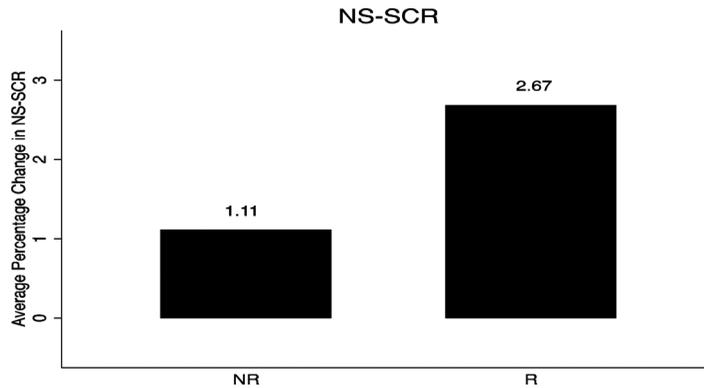
Figure 2. Graph bar of the change in NS-SCR from baseline to narrative.

There was not a significant difference between Rs and NRs at baseline SCL (t (154) = −0.27, p = .77) or during the narrative (t (154) = −0.28, p = .77). However, a two-tailed t-test confirmed that the percentage change in SCL from baseline to narrative was larger for Rs (M = 0.11, SD = 0.17) than for NRs (M = 0.06, SD = 0.10; t (149) = −1.94, p = .05).

Modeling Costly Action

To model costly actions, we estimate a logistic regression and include perspective taking, CORT change, and NS-SCR as predictors. Davis[53] describes perspective taking as "the tendency to spontaneously adopt the psychological point of view of others," implying that perspective taking is a skill that involves a number of cognitive processes. Furthermore, high-perspective takers are able to maintain a higher level of cognitive functioning when aroused.[54] The percentage change in CORT was included since narrative exposure led to an overall 17% decline. To estimate the predictability of the electrodermal variables, we included the change in NS-SCR, which is highly related to emotional stimuli. Since SCL may be collinear with NS-SCR, we did not include the former in the model (see Table 1).
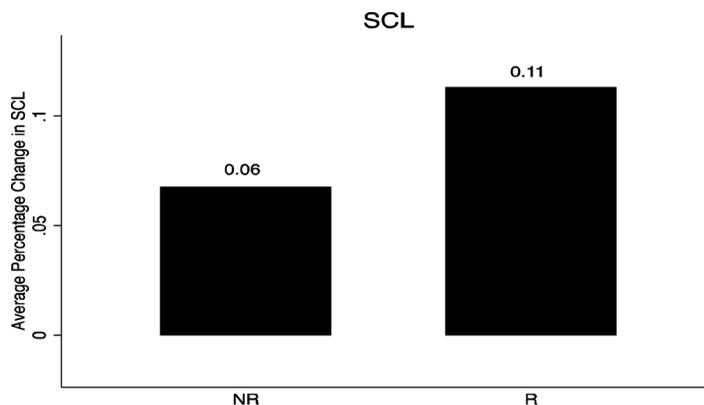

Figure 3. Graph bar of the change in SCL from baseline to narrative.

Table 1. Logit model ($N = 148$; log-likelihood $= -92.97$)

Parameter	Estimated coefficient (SE)	p-value	Odds ratio
NS-SCR change	0.17 (0.07)	.02**	1.19
Perspective taking	0.53 (0.19)	.001***	1.70
CORT change	−0.003 (0.003)	.31	0.99
Intercept	−2.86 (0.96)	.003***	
χ^2	<0.001		
Wald	15.18		
Pseudo R^2	0.09		

Huber-White standard errors are in parentheses. Dependent variable is binary (Donation = 1, or otherwise = 0). Significantly different than zero at 95% (**), 99% (***) confidence. SE is the standard error.

We found that increasing NS-SCR change by one unit increased the odds that a person will donate by 1.19 times. The percentage change in NS-SCR confirmed autonomic arousal during the narrative stimulus and predicted the decision to donate. A unit increase in perspective taking increased the log odds of donations by 0.53. The percentage change in CORT was not a significant predictor of donations ($p = .31$). However, using robust standard errors in an ordinary least square regression confirmed that a unit change in CORT ($b = -0.004$, $SE = 0.001$, $p < .001$) explained 5% of variance in motivation to help, $R^2 = 0.05$, $F(1, 151) = 16.88$, $p < .001$.

Discussion

In this paper, we have shown that a persuasive narrative can motivate costly behavior within a laboratory setting. Fifty-four percent of the individuals donated money to charity after watching the narrative. In general, Rs had personality traits that were more agreeable, showed more empathic concern, and exhibited greater perspective taking than NRs. After watching the narrative, Rs reported greater concern for the people in the video, higher personal distress, and more positive attitudes towards the organization sponsoring the narrative compared to NRs. Overall, narrative exposure led to a significant decline in CORT and a trend towards an increase in ACTH. ACTH is involved with attention and distress[55] and is released in seconds following a stimulus.[56] ACTH increase was expected since without attention to the narrative, the emotional engagement necessary to motivate costly action may not be produced. Our predictive model confirmed that greater change in NS-SCR and an increase in perspective taking raise the likelihood of donating. We conclude that a persuasive narrative affects those who are predisposed to respond to the narrative and are more aroused by the narrative's qualities.

The literature lacks a clear understanding of why individuals engage in costly behaviors and in some cases the deliberate killing of themselves. Our study takes into account the evidence from a charity experiment that, although a world apart from suicide terrorism, both share the feature of a voluntary costly action for the provision of a public good, be it the witnessing of the faith, helping others in a struggle, or the slaughter of the enemy. In Muslim cultures, the concept of martyrdom and its

associated narratives express a pious and valorous ideal, and the martyr's sacrifice is a means for communal engagement.[57] Pape[58] refers to the murals, shrines, and public commemorations of dead suicide terrorists as evidence of community support. In the context of political violence, some individuals accept the ultimate cost—their lives—in exchange for collective benefits. This approach indicates that individuals—depending on contact with persuasive contextualized narratives—maintain variable likelihood of engaging in self-sacrificial acts.

This study does not address religious/ideological motivations addressed in the literature. When suicide missions stem from strong religious conviction in a glorious destiny from martyrdom and vast rewards in the afterlife, we assume that the perpetrator is motivated by individual benefits. In Islam, the religious foundation of martyrdom is the covenant of allegiance that the martyr contracts with God to enter paradise.[59] Religion is not the cause of all conflicts involving suicide terrorism, but it can provide the means by which a local political struggle can be transformed into a cosmic war[60] and is capable of offering future benefits that can hardly be matched in this world.[61] Likewise, the study does not address the role of group-based motivations. Human awareness of mortality can lead to martyrdom when there is a severe threat to group survival.[62] As one's personal identity is meshed with that of the group,[63] collective survival becomes inseparable from one's own.[64] Wintrobe[65] suggests that merging self with the group (leader), referred to as solidarity, can bypass extreme negative costs to the self. While parochial altruism reduces one's payoff while promoting intergroup hostility, it can contribute to favorable outcome in conflicts.[66] Severe threat to group survival can lead to suicide terrorism,[67] particularly when the perpetrators and victims belong to different groups.[68] Future studies may provide a better understanding of how narratives that engage these motivations lead to greater self-sacrifice. The psychological literature already suggests that religiosity and group processes motivate charitable giving.[69]

Suicide attackers do not come from "the criminal, illiterate, or poor, but from largely secular and educated middle classes."[70] As Atran[71] pointed out, "Perhaps to stop the bombing we need research to understand which configurations of psychological and cultural relationships are luring and binding thousands, possibly millions, of mostly ordinary people into the terrorist organization's martyr-making web." As it stands, the direct link between persuasive narratives and one's willingness to engage in suicide terrorism is open for debate. Further research using narratives as motivational stimuli is needed to determine whether our findings are replicable, and whether the observed association meaningfully sheds light on other costly actions. Furthermore, the physiologically-derived variables may improve the predictive power of decision-making models. If we cannot properly explain how and why people come to commit acts of suicide terrorism, we have little ground from which to develop effective preventive strategies.

Funding

Notes

1. Karin M. Fierke, "Agents of Death: The Structural Logic of Suicide Terrorism and Martyrdom," *International Theory* 1, no. 1 (2009): 155–184.

2. Ibid., 155.

3. Eli Berman and David D. Laitin, "Religion, Terrorism and Public Goods: Testing the Club Model," *Journal of Public Economics* 92, no. 10 (2008): 1942–1967.

4. Sam Harris, *The End of Faith: Religion, Terror, and the Future of Reason* (New York: W. W. Norton & Company, 2005).

5. Jessica Stern, *Terror in the Name of God: Why Religious Militants Kill* (New York: Ecco, 2003).

6. Scott Atran, "Genesis of Suicide Terrorism," *Science* 299, no. 5612 (2003): 1534–1539.

7. David C. Rapoport, "Sacred Terror: A Contemporary Example From Islam," in W. Reich, ed., *Origins of Terrorism: Psychologies, Ideologies, Theologies, States of Mind* (Cambridge: Woodrow Wilson International Center for Scholars, Cambridge University Press, 1990), 103–130; Diego Gambetta, *Making Sense of Suicide Missions* (Oxford: Oxford University Press, 2005).

8. Steven R. Corman, "Understanding the Role of Narrative in Extremist Strategic Communication," in Laurie Fenstermacher and Todd Leventhal, eds., *Countering Violent Extremism: Scientific Methods and Strategies* (Washington, DC: NSI, 2011), 36–43.

9. Steph Lawler, "Narrative in Social Research," in T. May, ed., *Qualitative Research in Action* (London: Sage, 2002), 242–258.

10. M. R. Somers and G. D. Gibson, "Reclaiming the Epistemological Other: Narrative and the Social Constitution of Identity," in C. Calhoun, ed., *Social Theory and the Politics of Identity* (Oxford: Blackwell, 1994), 37–99; Bethan Benwell and Elizabeth Stokoe, *Discourse and Identity* (Edinburgh: Edinburgh University Press, 2006).

11. David J. Velleman, "Narrative Explanation," *The Philosophical Review* 112, no. 1 (2003): 1–25.

12. William D. Casebeer and James A. Russell, *Storytelling and Terrorism: Towards a Comprehensive Counter-Narrative Strategy* (Monterey, CA: Naval Postgraduate School, Center for Contemporary Conflict, 2005).

13. Jeffrey R. Halverson, Steven R. Corman, and H. L. Goodall Jr., *Master Narratives of Islamist Extremism* (New York: Palgrave Macmillan, 2011).

14. Clark McCauley and Sophia Moskalenko, *Friction: How Radicalization Happens to Them and Us* (Oxford: Oxford University Press, 2011).

15. Corman, "Understanding the Role of Narrative in Extremist Strategic Communication" (see note 8 above), 36.

16. Jeffrey R. Halverson, Scott W. Ruston, and Angela Trethewey, "Mediated Martyrs of the Arab Spring: New Media, Civil Religion, and Narrative in Tunisia and Egypt," *Journal of Communication* 63, no. 2 (2013): 312–332.

17. Ibid., 314.

18. Ibid.

19. Jerrold M. Post, Farhana Ali, Schuyler W. Henderson, Steven Shanfield, Jeff Victoroff, and Stevan Weine, "The Psychology of Suicide Terrorism," *Psychiatry: Interpersonal and Biological Processes* 72, no. 1 (2009): 13–31.

20. Jerrold Post, Ehud Sprinzak, and Laurita Denny, "The Terrorists in Their Own Words: Interviews with 35 Incarcerated Middle Eastern Terrorists," *Terrorism and Political Violence* 15, no. 1 (2003): 171–184; Jerrold M. Post, "When Hatred is Bred in the Bone: Psycho-Cultural Foundations of Contemporary Terrorism," *Political Psychology* 26, no. 4 (2005): 615–636.

21. Albert Bandura, Claudio Barbaranelli, Gian Vittorio Caprara, and Concetta Pastorelli, "Mechanisms of Moral Disengagement in the Exercise of Moral Agency," *Journal of Personality and Social Psychology* 71, no. 2 (1996): 364–374.

22. Herbert C. Kelman and Lee V. Hamilton, *Crimes of Obedience: Toward a Social Psychology of Authority and Responsibility* (New Haven: Yale University Press, 1989); Craig Comstock and Nevitt Sanford, *Sanctions for Evil* (San Francisco: Jossey-Bass, 1971).

23. Bandura et al., "Mechanisms of Moral Disengagement in the Exercise of Moral Agency" (see note 21 above), 365.

24. Daniel C. Batson, Marina P. Polycarpou, Eddie Harmon-Jones, Heidi J. Imhoff, Erin C. Mitchener, Lori L. Bednar, Tricia R. Klein, and Lori Highberger, "Empathy and Attitudes: Can Feeling for a Member of a Stigmatized Group Improve Feelings Toward the Group?" *Journal of Personality and Social Psychology* 72, no. 1 (1997): 105–118.

25. Frederick J. Hacker, "Dialectical Interrelationships of Personal and Political Factors in Terrorism," in Lawrence Z. Freedman and Yonah Alexander, eds., *Perspectives on Terrorism* (Wilmington, DE: Scholarly Resources, 1983), 19–32; Maxwell Taylor and Helen Ryan, "Fanaticism, Political Suicide and Terrorism," *Studies in Conflict & Terrorism* 11, no. 2 (1988): 91–111; Leonard B. Weinberg and William L. Eubank, "Terrorism and Democracy: What Recent Events Disclose," *Terrorism and Political Violence* 10, no. 1 (1998): 108–118.

26. Martha Crenshaw, "How Terrorists Think: What Psychology Can Contribute to Understanding Terrorism," in Lawrence Howard, ed., *Terrorism: Roots, Impact, Responses*, (New York: Praeger, 1992), 71–80; Claudia J. Clayton, Sally H. Barlow, and Bonnie Ballif-Spanvill, "Principles of Group Violence with a Focus on Terrorism," in H. V. Hall and L. C. Whitaker, eds., *Collective Violence: Effective Strategies for Assessing and Interviewing in Fatal Group and Institutional Aggression* (Boca Raton, FL: CRC Press, 1998), 277–311.

27. In Islam, the term "charity" is "*Zakat*" and is one of the Five Pillars of Islam.

28. See Translation of Sahih Muslim, Book 5: http://www.iium.edu.my/deed/hadith/muslim/smtintro.html.

29. Jorge A. Barraza and Paul J. Zak, "Empathy Toward Strangers Triggers Oxytocin Release and Subsequent Generosity," *Annals of the New York Academy of Sciences* 1167, no. 1 (2009): 182–189; Tao Lin, Shigeo Morishima, Akinobu Maejima, and Ningjiu Tang, "The Effects of Virtual Characters on Audiences' Movie Experience," *Interacting with Computers* 22, no. 3 (2010): 218–229.

30. Sally S. Dickerson and Margaret E. Kemeny, "Acute Stressors and Cortisol Responses: A Theoretical Integration and Synthesis of Laboratory Research," *Psychological Bulletin* 130, no. 3 (2004): 355–391.

31. Anthony W. K. Gaillard and Carol A. Varey, "Some Effects of an ACTH 4–9 Analog (Org 2766) on Human Performance," *Physiology & Behavior* 23, no. 1 (1979): 79–84.

32. Curt A. Sandman, Jack M. George, J. Dennis Nolan, Henk Van Riezen, and Abba J. Kastin, "Enhancement of Attention in Man with ACTH/MSH 4–10," *Physiology & Behavior* 15, no. 4 (1975): 427–431.

33. Bernd Figner and Ryan O. Murphy, "Using Skin Conductance in Judgment and Decision Making Research," in M. Schulte-Mecklenbeck, A. Kühberger, and R. Ranyard, eds., *A Handbook of Process Tracing Methods for Decision Research* (New York: Psychology Press, 2011), 163–184.

34. Jason J. Braithwaite, Derrick G. Watson, Robert Jones, and Mickey Rowe, "A Guide for Analyzing Electrodermal Activity (EDA) and Skin Conductance Responses (SCRs) for Psychological Experiments," *Psychophysiology* 49 (2013): 1017–1034.

35. Todd C. Helmus, "Why and How Some People Become Terrorists," in Paul K. Davis and Kim Cragin, eds., *Social Science for Counterterrorism: Putting the Pieces Together* (Santa Monica, CA: RAND Corporation, 2009), 71–112.

36. Amy L. Ai, Toni Cascio, Linda K. Santangelo, and Teresa Evans-Campbell, "Hope, Meaning, and Growth following the September 11, 2001, Terrorist Attacks," *Journal of Interpersonal Violence* 20, no. 5 (2005): 523–548; Daphna Canetti-Nisim, Eran Halperin, Keren Sharvit, and Stevan E. Hobfoll, "A New Stress-Based Model of Political Extremism, Personal Exposure to Terrorism, Psychological Distress, and Exclusionist Political Attitudes," *Journal of Conflict Resolution* 53, no. 3 (2009): 363–389; Barbara Lopes Cardozo, Reinhard Kaiser, Carol A. Gotway, and Ferid Agani, "Mental Health, Social Functioning, and Feelings of Hatred and Revenge of Kosovar Albanians One Year after the War in Kosovo," *Journal of Traumatic Stress* 16, no. 4 (2003): 351–360; Joop TVM De Jong, Ivan H. Komproe, Mark Van Ommeren, Mustafa El Masri, Mesfin Araya, Noureddine Khaled, Willem van de Put, and Daya Somasundaram, "Lifetime Events and Posttraumatic Stress Disorder in 4 Post Conflict Settings," *JAMA* 286, no. 5 (2001): 555–562; Brian J. Hall, Stevan E. Hobfoll, Patrick A. Palmieri, Daphna Canetti-Nisim, Oren Shapira, Robert J. Johnson, and Sandro Galea,

"The Psychological Impact of Impending Forced Settler Disengagement in Gaza: Trauma and Posttraumatic Growth," *Journal of Traumatic Stress* 21, no. 1 (2008): 22–29.

37. Post, "When Hatred is Bred in the Bone: The Social Psychology of Terrorism," *Annals of the New York Academy of Sciences* 1208, no. 1 (2010): 15–23.

38. Jeff Victoroff, "The Mind of the Terrorist: A Review and Critique of Psychological Approaches," *Journal of Conflict Resolution* 49, no. 1 (2005): 3–42.

39. Amanda Ripley, "Why Suicide Bombing Is Now All the Rage," *Time* 159, no. 15 (2002): 32.

40. Henry F. Carey, "Immigrants, Terrorism and Counter-Terrorism," *Peace Review* 14, no. 4 (2002): 395–402; Dirk Laabs and Terry McDermott, "Prelude to 9/11: A Hijacker's Love, Lies," *Los Angeles Times*, January 27, 2003; Anonymous, *American Hubris: Why the West is Losing the War on Terror* (Washington, DC: Brassey's, 2004).

41. Jerrold M. Post, "Hostilité, Conformité, Fraternité: The Group Dynamics of Terrorist Behavior," *International Journal of Group Psychotherapy* 36, no. 2 (April 1986): 211–224; Jerrold M. Post, "Rewarding Fire with Fire: Effects of Retaliation on Terrorist Group Dynamics," *Studies in Conflict & Terrorism* 10, no. 1 (1987): 23–35; Jerrold M. Post, "Group and Organizational Dynamics of Political Terrorism: Implications for Counterterrorist Policy," in P. Wilkinson and A. M. Stewart, eds., *Contemporary Research on Terrorism* (Aberdeen, Scotland: Aberdeen University Press, 1989), 307–317; Ken Heskin, "Political Violence in Northern Ireland," *The Journal of Psychology* 119, no. 5 (1985): 481–494; Scott Atran, "Genesis of Suicide Terrorism," *Science* 299, no. 5612 (2003): 1534–1539; Marc Sageman, *Understanding Terror Networks* (Philadelphia: University of Pennsylvania Press, 2004); John Horgan, "The Search for the Terrorist Personality," in Andrew Silke, ed., *Terrorists, Victims and Society: Psychological Perspectives on Terrorism and Its Consequences* (New York: Wiley, 2003), 1–27; Ignacio Sánchez-Cuenca and Luis De la Calle, "Domestic Terrorism: The Hidden Side of Political Violence," *Annual Review of Political Science* 12 (2009): 31–49.

42. Jerrold M. Post, "Notes on a Psychodynamic Theory of Terrorist Behavior," *Terrorism: An International Journal* 7, no. 3 (1984): 241–256.

43. Mark H. Davis, "Measuring Individual Differences in Empathy: Evidence for a Multidimensional Approach," *Journal of Personality and Social Psychology* 44, no. 1 (1983): 113–126.

44. Maggie Geuens and Patrick De Pelsmacker, "Developing a Short Affect Intensity Scale," *Psychological Reports* 91, no. 2 (2002): 657–670.

45. John P. Oliver and Sanjay Srivastava, "The Big Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives," in L. A. Pervin and O. P. John, eds., *Handbook of Personality: Theory and Research* (New York: Guilford Press, 1999), 102–138.

46. Batson et al., "Empathy and Attitudes" (see note 24 above), 106.

47. Paul J. Zak, Robert Kurzban, and William T. Matzner, "Oxytocin is Associated with Human Trustworthiness," *Hormones and Behavior* 48, no. 5 (2005): 522–527.

48. Reiner Nikula, "Psychological Correlates of Nonspecific Skin Conductance Responses," *Psychophysiology* 28, no. 1 (1991): 86–90; Rimma Teper, Michael Inzlicht, and Elizabeth Page-Gould, "Are We More Moral than We Think? Exploring the Role of Affect in Moral Behavior and Moral Forecasting," *Psychological Science* 22, no. 4 (2011): 553–558.

49. James C. Patterson II, Leslie G. Ungerleider, and Peter A. Bandettini, "Task-Independent Functional Brain Activity Correlation with Skin Conductance Changes: An fMRI Study," *Neuroimage* 17, no. 4 (2002): 1797–1806.

50. Figner and Murphy, "Using Skin Conductance in Judgment and Decision Making Research" (see note 33 above).

51. Wolfram Boucsein and Michael Thum, "Design of Work/Rest Schedules for Computer Work Based on Psychophysiological Recovery Measures," *International Journal of Industrial Ergonomics* 20, no. 1 (1997): 51–57.

52. Paul M. Stewart and Nils P. Krone, "The Adrenal Cortex," in H. M. Kronenberg, S. Melmed, K. S. Polonsky, P. R. Larsen, eds., *Williams Textbook of Endocrinology*, 12th ed. (Philadelphia, PA: Saunders Elsevier; 2011), 497–515.

53. Mark H. Davis, "Measuring Individual Differences in Empathy: Evidence for a Multidimensional Approach," *Journal of Personality and Social Psychology* 44, no. 1 (1983): 113–126.

54. Deborah R. Richardson, Laura R. Green, and Tania Lago, "The Relationship Between Perspective-Taking and Nonaggressive Responding in the Face of an Attack," *Journal of Personality* 66, no. 2 (1998): 235–256.

55. Alessandro Mauri and A. Volpe, "Stress Mediators in the Amniotic Compartment in Relation to the Degree of Fetal Distress," *Fetal Diagnosis and Therapy* 9, no. 5 (1994): 300–305.

56. J. A. W. M Weijnen and J. L. Slangen, "Effects of ACTH-Analogues on Extinction of Conditioned Behavior," *Progress in Brain Research* 32 (1970): 221–235.

57. Halverson et al., "Mediated Martyrs of the Arab Spring" (see note 18 above), 327.

58. Robert Pape, *Dying to Win: The Strategic Logic of Suicide Terrorism* (New York: Random House, 2005).

59. Mohammed Maarouf, "Suicide Bombing: The Cultural Foundations of Morocco's New Version of Martyrdom," *Journal of Religion and Popular Culture* 25, no. 1 (2013): 1–33.

60. Mark Juergensmeyer, "Terror in the Mind of God," *Theological Studies* 61, no. 4 (2000): 777–779.

61. Richard Sosis and Candace Alcorta, "Militants and Martyrs: Evolutionary Perspectives on Religion and Terrorism," in R. Sagarin and T. Taylor, eds., *Natural Security: A Darwinian Approach to a Dangerous World* (Berkeley: University of California Press, 2008), 105–124.

62. Arie W. Kruglanski, Xiaoyan Chen, Mark Dechesne, Shira Fishman, and Edward Orehek, "Fully Committed: Suicide Bombers' Motivation and the Quest for Personal Significance," *Political Psychology* 30, no. 3 (2009): 331–357.

63. Jerrold Post, Ehud Sprinzak, and Laurita Denny, "The Terrorists in Their Own Words: Interviews with 35 Incarcerated Middle Eastern Terrorists," *Terrorism and Political Violence* 15, no. 1 (2003): 171–184.

64. Kruglanski et al., "Fully Committed" (see note 62 above).

65. Ronald Wintrobe, "Extremism, Suicide Terror, and Authoritarianism," *Public Choice* 128, nos. 1–2 (2006): 169–195.

66. Jung-Kyoo Choi and Samuel Bowles, "The Coevolution of Parochial Altruism and War," *Science* 318, no. 5850 (2007): 636–640.

67. Kruglanski et al., "Fully Committed" (see note 62 above), 336.

68. Mia Bloom, *Dying to Kill: The Allure of Suicide Terror* (New York: Columbia University Press, 2005).

69. Stephan Stürmer and Mark Snyder, "The Psychological Study of Group Processes and Intergroup Relations in Prosocial Behavior," in S. Stürmer and M. Snyder, eds., *The Psychology of Prosocial Behavior: Group Processes, Intergroup Relations, and Helping* (Oxford, UK: Wiley-Blackwell, 2009); René Bekkers and Pamala Wiepking, "Who Gives? A Literature Review of Predictors of Charitable Giving Part One: Religion, Education, Age and Socialization," *Voluntary Sector Review* 2, no. 3 (2011): 337–365.

70. Nichole Argo, "Human Bombs: Rethinking Religion and Terror," MIT Center for International Studies, Audit of the Conventional Wisdom 06-07 (April 2006).

71. Atran, "Genesis of Suicide Terrorism" (see note 6 above).