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### Are You Trying to Recruit Suicide Bombers or Something?

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Are you trying to recruit suicide bombers or something?

An honors thesis presented to the  
Department of Criminal Justice,  
University at Albany, State University of New York  
in partial fulfillment of the requirements  
for gradation with Honors in Criminal Justice  
and  
graduation from the Honors College.

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Suicide terrorism has been extensively studied, although few researchers have been able to arrive at definitive conclusions. Often overlooked is the explanatory potential of evolutionary psychology. This study presents an evolutionary model of suicide terrorism using the principles of kin selection theory and inclusive fitness and offers several predictions about suicide terrorists. To test these predictions, an experimental design was constructed in which participants randomly received one of nine separate scenarios in which they were told that they were a member of a marginalized ethnic group and asked if they would be willing to commit a suicide bombing against their oppressors. The findings provide partial support for an evolutionary model of suicide terrorism and indicate future investigation is required to fully understand how evolutionary psychology can be used by practitioners and policy makers to combat suicide terrorism.

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*PESHAWAR 9/22/2013: A twin suicide bombing killed at least 78 people at a church service in northwest Pakistan on Sunday, officials said, in what is believed to be the country's deadliest attack on Christians. No one claimed responsibility for the incident. An AFP reporter saw shreds of human flesh and bloodstains on the walls and floor of the church, whose windows had been ripped apart by the blast. Pages of a Bible were scattered near the altar and rice meals mingled with dust on the floor amid shattered benches. Walls were gouged with ball bearings used in the explosives, he said. Grieving relatives blocked the main Grand Trunk Road highway with bodies of the victims to protest against the killings, an AFP reporter said.*

- <http://tribune.com.pk/story/607734/fifteen-dead-in-suicide-attack-outside-peshawar-church/>

This scene of slaughter and devastation is eerily familiar. It is echoed at each site of a suicide bombing. Unfortunately, it is not a unique occurrence; suicide attacks are rapidly becoming terrorists' favorite tactic. There has been a steady rise in suicide bombings in recent years, particularly in the Middle East (Pape, 2003). This devastating act involves destruction of both life and property and imaginable suffering for victims and their families. To help prevent these shocking acts of terror, the international community must create policies directed against suicide bombers. This can only be accomplished if policymakers first have an in-depth understanding of the causes of suicide attacks.

However, this has proven difficult and the academic community has yet to agree on an explanation for the often-puzzling phenomenon. There have been numerous attempts to pinpoint the causal factors that lead suicide bombers to take their own lives and profile these attackers. One perspective that has been unexplored is that of evolutionary psychology, which can contribute much in the way of explaining suicide terrorism. Gallup and Weedon (2013) outlined an evolutionary model of suicide terrorism and derived several predictions about the characteristics of suicide attackers. In this study a number of these predictions were tested via a survey that presented participants with a hypothetical scenario in which they are members of a marginalized ethnic group. After reading this vignette, subjects answered several questions concerning their willingness to perpetrate a suicide attack against their oppressors.

## **Definition of Suicide Terrorism**

“Broadly defined, terrorism is the use of extreme violence against innocent civilians in to create fear for the purpose of forcing political, social, or religious change” (Kennedy, 2006). The delineation of suicide terrorism is less clear and there has been some dispute over the precise definition. It has been called oppositional terrorism, utilized for vengeance and viewed by many as method to reestablish honor. Most attacks are completed when explosives are activated; either carried on the body of the terrorist or placed in the vehicle the terrorist is driving. The attacker himself becomes a human bomb, executed by the push of a button (Sela-Shayovitz, 2007; Berko & Erez, 2005). There are several different definitions in the literature; Pape (2003) defines suicide terrorism as an attack the terrorist feels they will not survive, in which a method that necessitates the attacker’s death to succeed is often employed. In contrast, Pedahzur, Perliger, Weinberg, L. (2003) describe a suicide attack as “an act in which the death of the perpetrator constituted an integral part of the operation and as necessary for its accomplishment” (413). To test the evolutionary model of suicide terrorism outlined in this study, the later definition will be used because it includes the death of the perpetrator as a requirement, which is the key element that distinguishes suicide attacks from other terrorist activities.

## **History of Suicide Terrorism**

Suicide terrorism has existed for centuries and the first recorded instances can be traced to Jewish *Zealots* fighting their Roman occupiers. They were fairly dissimilar to the present-day suicide terrorist, both in methods and targets. However, their lack of regard for their own lives when carrying out assassinations marks them as the predecessors to modern-day suicide attackers. The *Ismaili Assassins*, Shi’ite Muslims who targeted Sunnis in what is now Iran, also practiced these lethal assassinations (Hutchinson, 2007). The idea of a suicide mission has

virtually always been present in warfare, although there was generally a small chance of survival. This is the line that distinguishes previous instances of suicide attacks from modern day suicide bombings (Hutchinson, 2007).

What is now considered modern suicide terrorism did not evolve until the late 20<sup>th</sup> century. Contemporary suicide terrorism began in Lebanon in 1980 when an Iranian boy strapped explosives on his chest and destroyed an Iraqi tank (Kennedy, 2006; Hutchinson, 2007). The next year a terrorist bombed the Iraqi embassy in Lebanon, leaving 27 people dead. Hereafter, suicide bombing was a weapon for extremists and could cause an inconceivable amount of pain, both psychological and physical. Its impact is much more potent than conventional warfare because it conveys the message that insurgents are not afraid of death (Berko & Erez, 2005; Hafez, 2006; Hutchinson, 2007).

The United States first experienced a suicide attack in 1983, when a suicide terrorist bombed the United States Embassy in Lebanon. This was followed by an attack on the Beirut International Airport in which 241 Americans were killed (Berko & Erez, 2005). According to Hafez (2006), “since the 1980s, there have been suicidal attacks in Afghanistan, Bangladesh, Britain, Egypt, India, Indonesia, Iraq, Israel, Lebanon, Morocco, Pakistan, Russia, Saudi Arabia, Sri Lanka, Tunisia, Turkey, the United States, Uzbekistan, the West Bank and Gaza, and Yemen.” Advances in technology have ensured that a maximum amount of casualties can be attained. Whether attackers are wearing a vest or blowing up a car, they are a significant threat to security forces (Lankford & Hakim, 2011; Wells & Horowitz, 2007).

Nowhere is this more evident than in the Israel-Palestinian conflict. Between 1993 and 2000, 37 suicide attacks were perpetrated in Israel. Since the beginning of the second Intifada, 164 human bombs have been detonated and an additional 450 bombers were captured before

they could complete the attack. Most targets were shopping malls and buses, highly populated places where maximum damage could be achieved (Berko & Erez, 2005; Sela-Shayovitz, 2007). Soibelman (2004) states popular support among Palestinians for suicide terrorism was over 70% in the summer of 2001. It reached new highs in 2003, when 74.3% of Palestinians stated they approved of these attacks (Hafez, 2006).

This sharp increase in bombings is also reflected worldwide. There were just 31 suicide attacks in the 1980s, this increased sharply in the 1990s to 104. In 2000-2001 alone, there were 53 attacks (Pape, 2003). According to Kennedy (2006) in between 1980 and 2003 suicide attacks accounted for 48 percent of fatalities despite the fact that they amounted to only three percent of terrorist incidents. This does not include the September 11<sup>th</sup> attack. It is clear that suicide terrorism is one of the most dangerous criminological issues the international community has faced in the last decade (Sela-Shayovitz, 2007).

### **Current Research on Suicide Terrorism**

In consequence of the growing threat, scholars have attempted to understand suicide terrorism (Kennedy, 2006; Lankford & Hakim, 2011). Despite the large amount research done on this deadly phenomenon, there have been few consistent findings on the common characteristics of suicide terrorists and factors that lead them to give up their lives. Lankford & Hakim (2011) state that there has yet to be either a demographic or psychological profile of suicide attackers and Hafez (2006) elaborates, commenting that suicide bombers do not easily lend themselves to generalizations. There is little they have in common, besides being single, unmarried, and young. Indeed, efforts to build personality and motivational profiles have had limited success (Kennedy, 2006). The current literature is inconsistent and sometimes contradictory: “There are various approaches and explanations for suicide terror which include personal and group



motives, environmental conditions, and their interactions” (Sela-Shayovitz, 2007, 166). The result has been several different explanatory models of suicide terrorism, utilizing many different disciplines.

### *External Motivators for Suicide Bombings*

Many researchers have focused almost exclusively on the external factors that compel individuals to commit suicide bombings. Berko & Erez (2005) contend that because it is a social behavior, suicide terrorism reflects basic social institutions, structures, and contemporary value systems. They conducted a groundbreaking study in which they interviewed seven attempted suicide bombers and recorded first hand accounts of their journeys. This type of analysis is difficult to obtain because of the self-destructive nature of an attack (Wells & Horowitz, 2007). Based on data collected from the interviews, Berko & Erez (2005) concluded, “social structures, value systems, and the collective memory of a group combine to produce a steady supply of suicide bombers” (617).

This assumption is also reflected in the work of Hutchinson (2007) who believes that suicide bombing emerges from the complex interaction between religions, political and social systems, economics, and several other factors. He offers an analysis of the systemic roots of suicide terrorism and concludes suicide attackers are a product of their environment and while they may share certain features, no archetype exists.

Benmelech, Berrebi, Klor (2012) detail the connection between economic conditions and terrorism. When studying Palestinian suicide terrorists from 2000-2006 they found unemployment and poor economic conditions allow recruiters to engage better educated suicide terrorists who in turn attack more highly valued targets. This is consistent with the work of

Atran (2003) who found suicide bombers in the Middle East are well educated and have no detectable psychopathology.

#### *Additional Motivators for Suicide Bombings*

The individual motives of suicide bombers are examined in many studies. Past research found many suicide terrorists had troubled childhoods and low-self esteem. For example, failed Palestinian suicide bombers in an Israeli prison analysis reported childhoods marked by rejection, neglect, and humiliation. They also recounted several traumatic experiences. All of these elements appear to have contributed to their choice to volunteer for a suicide bombing (Lankford et al., 2011). McMains (2003) posits that suicide bombers are looking for a sense of greater purpose and hope to change reality. Post (2009) expands on this idea and feels one should view suicide terrorism as a quest for personal significance. He utilizes both religious and secular literature to support his hypothesis.

In his pioneering review of worldwide suicide terrorism incidents from 1980-2001, Pape (2003) focuses solely on the results of suicide terrorism, claiming it is designed to force modern liberal democracies to concede their territory to the terrorist groups. This is a unique perspective, as many researchers ignore the relationship between the terrorist organization and the suicide attacker, choosing instead to emphasize motivations of the individual terrorist. Pape (2003) argues the sharp increase in suicide bombings is primarily because the tactic is so successful. To reduce incidents of suicide terror, he believes policy makers must concentrate on demonstrating that the previous victories of the terrorist groups will not be repeated and focus on homeland security.

#### *Evolutionary Literature on Suicide Attacks*

Of particular importance is the research on suicide terror done by evolutionary psychologists. Although still a relatively young field, there have been some studies that have explored the role evolution plays in suicide terrorism. Kanazawa (2007) notes the importance of evolutionary psychology in explaining several different contemporary problems; he highlights the Savanna Principle, which states “the human brain has difficulty comprehending and dealing with entities and situations that did not exist in the ancestral environment” (Kanazawa, 2007, 12), and its importance in understanding why the promise of 72 virgins in the afterlife is so enticing to Muslim men who commit suicide bombings. They are tricked, so to speak, by the Quran, which did not exist in the ancestral environment. They believe they can copulate with these virgins if they die as martyrs. His emphasis on the Quran as an evolutionary novel entity simplifies a question that has puzzled social scientists for many years.

Thayer & Hudson (2013) also examine the causes of Islamic suicide bombing using both evolutionary psychology and biology. They argue that the Islamic culture creates conditions that are optimal to the spread of suicide bombers. This includes the delayed marriages that result from increased dowry prices. Unmarried men are faced with enormous pressure and reproductive failure, which can lead to desperation. It is not surprising that Islamist organizations exploit these young men with promises of glory and money.

There is a multitude of perspectives academics use when attempting to explain and understand suicide bombings. Whether they are focusing on external motivators, societal conditions, or individual characteristics it is clear that there has yet to be a definitive answer on what drives suicide attackers. Examining the principles of evolutionary psychology can illuminate previously misunderstood assumptions about suicide terrorism (Thayer et al., 2013;

Kanazawa, 2007). A complete evolutionary model of suicide terrorism, which has yet to be tested, should be able to provide valuable insight into this destructive terrorism tactic.

### **An Evolutionary Model of Suicide**

To understand an evolutionary model of suicide terrorism, one must first examine the role evolution plays in suicide. Contrary to popular belief, evolution has very little to do with survival. Instead, it is centered on the perpetuation of genes. This involves reproductive competition to pass one's genes on to the next generation. In other words, it does not matter if one lives or dies, as long as they are able to pass on their genes via reproduction (Gallup & Weedon, 2013). Evolution can be viewed as "gradual changes in the composition of the gene pool over time" (Gallup & Weedon, 2013, 792). When viewing evolution from this perspective, traits can be analyzed according to their reproductive costs and benefits. Those traits in which the costs are greater than the benefits will be selected against (Gallup & Weedon, 2013).

This was expanded on with the notion of inclusive fitness, or the idea that one's "net genetic representation in future generations" is affected by the reproductive success of those who shares their genes (Gallup & Weedon, 2013, 792). Therefore, individuals who attempt to enhance the reproductive success of their kin will improve their inclusive fitness.

De Catanzaro (1980, 1995) was one of the first researchers to apply the principles of inclusive fitness to suicide and stated that under certain conditions committing suicide can be adaptive. If an individual is not contributing to the welfare of their reproductively viable kin and they have low reproductive prospects, committing suicide "would not remove any genes in the gene pool that would not have already been eliminated" because they failed to reproduce (Gallup & Weedon, 2013, 792). If one was using resources that would be better used by kin to further

their inclusive fitness, then prolonging that individual's existence could decrease their inclusive fitness. There are several conditions in which suicide can be considered adaptive.

### *Reproductive Potential*

When an individual has a low reproductive potential it “could result in selective destructive pressure that culminates in suicide” (Gallup & Weedon, 2013, 792). Since the individual is not going to reproduce and pass on their genes to the next generation, killing themselves would have no effect on the gene pool. As such, one would predict that those who committed suicide would be unlikely to reproduce.

De Cantazaro (1995) provides support for this theory and found suicide is more common among the terminally ill and the elderly. Both of these groups have a very low probability of reproduction and are unlikely to engage in behavior that would promote their reproductive fitness.

### *Perceived Burden to Family*

Many researchers posit that in order for suicide to increase one's inclusive fitness, the individual must feel they are a burden to their families. These individuals think they are wasting resources that could be better spent by their kin. Therefore, committing suicide will allow their family to access those resources and presents a way to increase their inclusive fitness (Gallup & Weedon, 2013; De Catanzaro, 1980, 1995).

Brown, Brown, Johnson, Olsen, Melder, & Sullivan (2009) provide evidence for this notion in their survey of university students. They found a positive correlation between student's perceived burden to family and suicide ideation. This was enhanced in subjects with low romantic relationship satisfaction and poor health. These effects occurred independently of other variables, including hopelessness and depression, two well-known predictors for suicide.

Furthermore, Brown et al. (2009) found maternal age had a moderating effect on suicide ideation. The positive correlation between perceived burden and suicidal thoughts is strengthened in participants with a low maternal age and gets progressively weaker as maternal age increases. This also held true for suicide attempts. This is an unusual effect, but is consistent with an evolutionary model of suicide. Younger mothers have a higher likelihood of reproducing and thus the resources an individual utilizes can significantly detract from their inclusive fitness by limiting their mother's reproductive success. This is less true for older mothers, as they are less likely to reproduce due to the enhanced possibility of birth defects.

Orden, Lynam, Hollar, & Joiner (2006) reported similar findings in which perceived burdensomeness was shown to predict suicide attempts. Their study also demonstrated perceived burdensomeness predicted suicide attempts beyond hopelessness and depression.

Joiner, Pettit, Walker, Voelz, Cruz, Rudd, & Lester (2002) examined suicide notes and found a higher amount of burdensomeness in notes written by those who used more lethal methods. This held true when controlling for several variables, such as gender and age.

### *Suicide Terrorists are Suicidal*

To use the model described above to explain suicide terrorism, one must first demonstrate suicide terrorists are suicidal. In his groundbreaking research, Lankford (2013) finds evidence for remarkable similarities between suicide bombers and those who take their own lives, termed as committing conventional suicide. He contends suicide bombers are not motivated by a desire to sacrifice their lives purely for the "cause." Instead, their final act can often be attributed to mental health issues and other crises. Lankford (2013) studied numerous sources, including testimony and martyrdom videos, and was able to identify over 130 attackers who had markers for suicide. He also gathered antidotal evidence that confirmed this theory, such as testimony

from recruiters, who claimed they sought out “guys who were desperate and sad” (Lankford, 2013, 18).

Berko & Erez (2005) came to similar conclusions and their interviews of failed suicide terrorists contained stories of grief and frustration. One woman became a bomber because her father forbade her from marrying the man she loved. She told the interviewer, “My life was useless, my life had no use to anyone...there are many people who want to do that, to be *shahids* (martyrs) and no one could prevent them from doing it” (Berko & Erez, 2005, 611). There is growing evidence that suicide terrorists fit the profile of those who commit conventional suicide, and this has direct bearing on an evolutionary model of suicide terrorism.

### *Predictions*

If an evolutionary model of suicide is applied to suicide terrorism then a number of predictions can be put forth. Most attackers should be single and have no children. As mentioned above, low reproductive potential is associated with suicide ideation and this should hold true for bombers as well. Furthermore, it is highly unlikely that suicide terrorists would have children, as they would be drastically reducing their inclusive fitness by ending their lives and leaving no one to care for their offspring (Gallup & Weedon, 2013).

Attackers should also be more likely to come from larger families. The more siblings a bomber has, the better chance any benefits they accrue by committing the attack will increase their inclusive fitness (Gallup & Weedon, 2013).

“The propensity to engage in suicide bombing ought to vary in relationship to the likelihood that suicide would confer a residual reproductive advantage to the bomber’s family members” (Gallup & Weedon, 2013, 793). Berko & Erez (2005) share instances in which terrorists are paid to commit suicide attacks and it is not uncommon for organizations to provide

compensation to family members. Furthermore, families of suicide bombers often experience an increase in their social standing after the act is committed. This could lead to reproductive benefits, such as access to resources or desirable mates. Post (2009) describes how in his interviews with jailed Palestinian terrorists they recalled, “the martyrs’ names were regularly celebrated in the mosque. The signs on the walls of the Hamas-run kindergartens read: ‘The children of the kindergarten are the shahids of tomorrow.’ This theme is incorporated in all levels of school” (383). As such, one would expect locations and cultures where martyrs are compensated with both physical and social rewards to produce a disproportionate number of suicide attackers. Researchers were able to test several of these predictions in this study.

### **Hypothesizes**

Using fictional scenarios, researchers were able to analyze the extent to which several variables influenced participants’ willingness to commit a suicide bombing. The following hypothesizes were measured:

- 1) Individuals who possess certain demographic characteristics (single, low income, childless, male) are more willing commit a suicide bombing.
- 2) Individuals in higher reward conditions are more willing to commit a suicide bombing.
- 3) Individuals who perceive themselves as a burden to their family are more willing to commit a suicide bombing.

### **Methodology**

The study consisted of a 3 (Bombing presentation: greater good vs. fortified) x 5 (Type of reward: national holiday and level of monetary reward) between-subjects design administered via Amazon’s Mechanical Turk (MTurk) Program. This is a service in which “workers” can be paid to complete tasks and fill out questionnaires from their computer. Research shows that MTurk workers generally provide a more diverse sample than found when surveying a selection of college or university students. The service has also been used to reproduce the findings of



multiple experiments that utilized a student population (Ausderan, 2014). The survey was posted as a Human Intelligence Tasks (HIT) on Mechanical Turk and if workers were interested they elected to enter the HIT. They then received a link that opened directly to the survey that was created on SurveyMonkey, a website that enables customers to create and publish customizable surveys (SurveyMonkey, n.d.).

After providing informed consent, participants were randomly assigned assigned a vignette (see Appendix A) in which they were told they were a marginalized ethnic group (the Estamese). They were then asked to join a fictional organization and commit a suicide bombing against their oppressors (the Bucharastan). They were randomly assigned to one of four reward conditions in which they were offered 1 million dollars, 100,000 dollars, an annual national holiday to be celebrated in their honor, or 1 million dollars and a national holiday. In the control condition, no reward was offered. The way the bombing was presented was also varied. Participants were randomly assigned to one of two conditions. In the “greater good” condition, the suicide bombing was presented as necessary to send a powerful message to the Bucharastan oppressors. In the fortified condition, subjects were informed that dying in the attack was necessary because once they entered the building they would be unable to escape before the attack was completed. The control condition merely informed participants that if they chose to complete the attack they would not survive.

After reading the fictional vignette, subjects were immediately asked several demographic questions. They also answered questions concerning suicide terrorism, identification, and perceived burden variables (refer to Appendix B for the complete list of questions). All subjects were given 25 cents upon completion of the study.

*Sample*

1,959 Mechanical Turk workers in the United States completed the survey. The sample that was analyzed included 1,816 participants. Subjects were removed from the sample if they skipped more than five questions on the survey.

## **Results**

For the dependent variable of willingness to commit a suicide bombing (this was defined as scores above a 1 [not at all] on a 7 point likert scale,) the statistical program Clarify was used to perform logit regressions which produced probabilities that incorporated the following factors: reward (4 conditions), demographic characteristics (relationship status, income, number of children, age and gender), identification variables, and perceived burden variables. Below are the significant findings that support an evolutionary model of suicide terrorism.

### *Gender*

Concerning the first hypothesis, gender and maternal age produced significant findings. If participants were male, they were more likely to express a willingness to commit a suicide bombing (Table 1). In terms of evolutionary theory, Thayer & Hudson (2013) proposed “non-alpha males are the prime candidates for reproductive failure, and thus are the prime candidates for social unrest in any human group” (44). Although reproductive potential of participants was not tested directly, this is a possible explanation for the finding that male subjects expressed a greater willingness to commit suicide terrorism. However, it should be noted that in this particular study, researchers found no association between subject’s relationship status and their likelihood of participating in suicide terrorism.

Table 1: Likelihood of committing a suicide bombing based on gender

Key			
	frequency		column percentage
commit 1=0 2/7=1 8=.	=gender-1		Total
	0	1	
0	580	903	1,483
	87.09	82.69	84.36
1	86	189	275
	12.91	17.31	15.64
Total	666	1,092	1,758
	100.00	100.00	100.00

<sup>1</sup>Gender (0=female, 1=male)

<sup>2</sup>Commit (0=no, 1=yes)

### *Maternal Age*

A logit regression found that the older participant's mothers were, the less likely they were to commit a suicide bombing (Table 2). This is consistent with an evolutionary model of suicide terrorism as older women who become pregnant are at risk for numerous complications. For example, "since the 1980s there has been an increase in the mean maternal age and in the expected prevalence of Down's syndrome" (Wu & Morris, 2012, 943). Therefore, as maternal age increases, the rewards associated with suicide terrorism would be less likely to enhance participant's inclusive fitness. In contrast, younger mothers have a greater chance of reproductive success, which would ensure propagation of the subject's genes, and thus make the rewards associated with suicide terrorism more valuable.

Table 2: Likelihood of committing a suicide bombing based on maternal age

Key										
frequency										
column percentage										
commit 1=0 2/7=1 8=.	mother_s_age								Total	
	1	2	3	4	5	6	7	8		
0	12	24	115	523	497	146	108	21	1,446	
	66.67	82.76	81.56	82.75	84.67	90.12	86.40	91.30	84.22	
1	6	5	26	109	90	16	17	2	271	
	33.33	17.24	18.44	17.25	15.33	9.88	13.60	8.70	15.78	
Total	18	29	141	632	587	162	125	23	1,717	
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	

<sup>1</sup>Maternal age (1=15-25, 2=26-35,3=35-47, 4=46-55, 5=56-65, 6=66-75, 7=75 and older, 8=don't know)

<sup>2</sup>Commit (0=no, 1=yes)

### *Perceived burden to family variables*

The data did not support the second hypothesis, as participants that were placed in the higher reward condition were not more likely to commit a suicide bombing. Researchers found partial support for the third hypothesis, tested using three different “perceived burden” variables in a logit regression.

Participants were asked to what extent they perceived they were a burden to their family (7 point likert scale, 1=not at all, 7=very much). In general, participants were more likely to commit a bombing if they felt they were a burden to their kin (Table 3). However, this was not a linear relationship and those that answered in the middle of the scale (3-6) were more likely to commit a bombing than those who answered at the most extreme (7). This non-linear relationship also held true when participant were asked to what extent they contributed to the well-being of their family (7 point likert scale, 1=not at all, 7=very much) and those that felt they contributed to the well-being of their family were less likely to commit a bombing (Table 4). These findings lend some support the hypothesis that people who perceived they were a burden to their family are more likely to commit a bombing in hopes of increasing their inclusive fitness. The final variable in this category, financial contribution to family, produced mixed results (Table 5). Participants were asked if they felt they contributed financially to their family (7 point likert scale, 1=not at all, 7=very much). Although, participants who answered “not at all” were more likely to commit a bombing (9.52%) than those that answered “very much” (8.94%), those at the low end of the scale were (2-4) were less likely to commit a bombing than those who answered they contributed financially to their family (5-6).

Table 3: Likelihood of committing a suicide bombing based on perceived burden to family

Key									
frequency									
column percentage									
commit 1=0 2/7=1 8=.		burden_family							
		1	2	3	4	5	6	7	Total
0	501	360	229	126	133	66	64	1,479	
	92.44	85.31	80.35	75.90	78.24	71.74	82.05	84.27	
1	41	62	56	40	37	26	14	276	
	7.56	14.69	19.65	24.10	21.76	28.26	17.95	15.73	
Total	542	422	285	166	170	92	78	1,755	

<sup>1</sup> Perceived burden to family (7 point likert scale, 1=not at all, 7=very much)

<sup>2</sup> Commit (0=no, 1=yes)

Table 4: Likelihood of committing a suicide bombing based on contribution to family well-being

Key									
frequency									
column percentage									
commit 1=0 2/7=1 8=.	_being_family	1	2	3	4	5	6	7	Total
0		70	79	97	200	293	271	471	1,481
		88.61	81.44	80.83	80.65	81.39	80.90	90.75	84.24
1		9	18	23	48	67	64	48	277
		11.39	18.56	19.17	19.35	18.61	19.10	9.25	15.76
Total		79	97	120	248	360	335	519	1,758
		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>1</sup> Contribute to the well-being of their family (7 point likert scale, 1=not at all, 7=very much)

<sup>2</sup> Commit (0=no, 1=yes)

Table 5: Likelihood of committing a suicide bombing based on financial contribution to family

Key									
frequency									
column percentage									
commit 1=0 2/7=1 8=.		financial_family							
		1	2	3	4	5	6	7	Total
0	190	193	191	209	211	150	336	1,480	
	90.48	84.65	82.68	81.64	78.15	79.79	91.06	84.47	
1	20	35	40	47	59	38	33	272	
	9.52	15.35	17.32	18.36	21.85	20.21	8.94	15.53	
Total	210	228	231	256	270	188	369	1,752	
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	

<sup>1</sup> Contribute to financially to their family (7 point likert scale, 1=not at all, 7=very much)

<sup>2</sup> Commit (0=no, 1=yes)



## **Discussion & Conclusion**

The results from this experiment and analysis lend support to several of the hypothesis proposed by an evolutionary model of suicide terrorism. Generally, male participants were more likely to express willingness to commit a suicide bombing. This supports the evolutionary proposition that males are most likely to experience reproductive failure and could use suicide terrorism as a method of compensation. In addition, participants whose mothers were older were less likely to commit a suicide bombing, lending credence to the hypothesis that subjects with younger mothers who are able to have children can increase their inclusive fitness if they commit a bombing. Overall, the variables that captured subjects' perceived burden to their family (perceived burden to kin, contribution to family well-being, and financial contribution) resulted in trends that were consistent with De Catanzaro's (1980, 1995) theory that those who believe they are wasting familial resources are more likely to commit suicide (or a suicide bombing) to increase their inclusive fitness.

Despite these findings, this study did not provide empirical evidence for several of the propositions that were formulated from an evolutionary model of suicide terrorism. This included the prediction that participants who were placed in a higher reward condition would be more likely to commit a suicide bombing. This could be a reflection of the fact that most participants had an income range of \$25,000-\$49,999 and thus a monetary reward was not perceived as worth the cost of their life. Furthermore, social benefits that are often associated with suicide terrorism in the Middle East are absent in America. Thus, the reward of a national holiday in the participants honor may have been difficult to comprehend (Berko & Erez, 2005).

Future research should concentrate on presenting similar scenarios to countries in which suicide bombing is commonplace. A major limitation of the current study is that all participants

resided in the United States. Since suicide bombing is virtually non-existent in America, at least in the context of terrorism, the concept may have been too abstract for participants. Thus subjects were unable to truly imagine themselves in the hypothetical situation.

Scholars should continue to examine an evolutionary model of suicide terrorism to determine its relevance. The present study lends partial support to several evolutionary hypotheses and replicating and extending it could bring researchers and practitioners closer to understanding the motivations of suicide terrorists.

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## Appendix A

The experimental vignettes are detailed below and the variations between each scenario are demonstrated via italics. Participants were assigned to one of four reward conditions (bolded). They were offered a monetary reward (1 million or 100,000 dollars), an annual national holiday celebrated in their honor, or 1 million dollars and a national holiday. Dying as a part of the proposed attack was presented as either necessary for the greater good (bolded) or necessary in order for the attack to be completed (italicized).

You are a member of the Estamse ethnic group that lives in the country of Bucharastan. The Estamese are members of a religious minority in the country. The Estamese people lost their autonomy decades ago when Bucharastan was created.

In 1990 the Estamese rebelled against the central Bucharastan authorities. Your aunt and uncle were killed in the fighting during the revolt. Two of your older siblings, who were also active participants in the rebellion, were taken away by the police and have not been seen since.

On a more positive note, the government has started to allow some Estamese to attend University. You are in your first year at the University.

But you are still discriminated against as an Estamese. You know of two other Estamese students who were beaten by members of the Bucharastan University Student Union because of their ethnicity.

Recently, a fellow Estamese student named Vadan who wants you to get involved in seeking more rights for your ethnic group has approached you. In a secret meeting, Vadan asked you if you would be willing to join the Estamese Liberation Organization and bomb the Bucharastan University Student Union. If you do this, it is certain you would not survive the attack. He offers you **[1 million dollars OR 100,000 dollars]** to be deposited in a secure bank account after you complete the act and a pension for your parents for life. He tells you that after you commit the bombing, there will be a national celebration day in your honor every year **[He tells you that after you commit the bombing, there will be a national celebration day in your honor every year]**.

Vadan says **[dying in the attack will send a powerful message so the oppressed Estamese will be taken seriously enough to negotiate on equal terms]** *[that because the target is heavily fortified, once you enter the building you will be unable to leave]*. Thus in order to carry out the attack, you must sacrifice yourself for the cause.

## Appendix B

### Demographic variables:

- What is your gender?
- What is your age?
- What is the highest level of school you have completed or the highest degree you have received?
- Which of the following best describes your current relationship status?
- Do you have any children?
- Do you have any siblings?
  - If yes to the previous question, how many?
- What is your approximate average household income?
- What best describes your religious beliefs?

### Socioeconomic variables:

- Do you consider yourself to be mostly a resident of: your city or town, your country, or the planet Earth?
- Have you traveled outside the country in the past five years?
- Have you lived outside the country in the past five years?
- Have you worked outside the country in the past five years?
- Do you currently have a valid passport?

### Suicide terrorism variables:

- Do you feel the attacked committed by the Estamese Liberation Organization is justified?
- If your friend announced s/he was going to undertake this attack, would you try to stop him or her?
- Would you donate money to the Estamese Liberation Organization?
  - If yes to the previous question, what amount?
- Do you feel the Bucharastan University Student Union deserved to be bombed?
- Would you be willing to commit the bombing for the Estamese Liberation Organization (ELO)?

### Identification variables:

- To what extent do you identify with the Estamese people?
- To what extent do you identify with the Bucharastan people?
- Do you feel the Estamese should gain autonomy?

### Perceived burden variables:

- To what extent do you feel you contribute to the success of your family?
- To what extent do you feel you contribute to the well-being of your family?
- To what extent do you feel you are a burden to your family?
- To what extent do you feel you contribute financially to your family?

