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The Ballot or the Bomb Belt: The Roots of Female Suicide Terrorism Before and After 9/11

Nakissa Jahanbani, Combating Terrorism Center at the US Military Academy at West Point, njahanbani@albany.edu

Charmaine Willis, Rockefeller College of Public Affairs & Policy University at Albany, State University of New York, cwillis@albany.edu

Abstract

In recent years, an upward trend in terrorist attacks has mirrored an increase in suicide attacks. According to our preliminary analysis, the events of September 11th marked a sea change in the number of terrorist attacks. While a rich literature has evaluated why terrorists participate in suicide attacks,¹ none have considered the uptick in volume after 9/11, and fewer yet have considered how female fighters may be contributing to this. We evaluate how both structural and female-specific factors affect the likelihood of female fighter suicide attacks. Recent literature discovered a trend in terrorist groups using females as suicide bombers due to cultural norms that permit them to get closer to targets. We test our theory using data from the Chicago Project on Security and Threats Suicide Attack Database (CPOST-SAD) and various datasets from the Quality of Government (QOG) compendium for the 1986-2016 time period. We construct a series of models that consider both female-specific and structural factors that could explain variation in the number of female suicide attacks. Our results indicate that our models encompass relatively stable patterns. Female political empowerment, female educational attainment, and female employment rates are significant and positive in our post-9/11 models, indicating that they may increase female suicide attacks. Democracy is a relevant structural factor and generally yields a positive effect on female suicide attacks across both time periods and multiple models. Ethnic fractionalization is significant in both time periods but yields a negative effect before 9/11 and a positive effect in the later period.

Keywords: terrorism, female fighters, suicide bombing, suicide attacks, suicide terrorism, September 11th, 9/11, CPOST, female suicide attackers

Introduction

Terrorism in the 21st century is marked by the increase of groups' use of suicide attacks and female suicide bombers specifically. The broad terrorism literature and the literature focused on female suicide fighters specifically largely ignores the structural factors that may facilitate female suicide attacks. The former corpus of literature analyzes structural factors that are associated with terrorism generally. For example, economic inequality and states' social welfare spending are shown to have a relationship with terrorism broadly and suicide terrorism specifically.² Yet, we do not know if these factors have a significant relationship with female suicide terrorism specifically. The current literature on female suicide terrorism unveils individual motivations for women to become suicide bombers and the strategic reasons groups may use them.³ However, we understand little about the structural factors that may encourage women to become suicide bombers at the aggregate level. For example, not every woman who has experienced some trauma will become a suicide bomber as an avenue for redress. We argue that understanding individual motivations is important but does not provide the whole picture. Furthermore, we argue that there is no reason to assume that structural factors will affect every demographic equally. Even in wealthy democracies, there is gender inequality such as the infamous gender wage-gap.⁴ Inequality between males and females may be even more pronounced in states with official religions where women are perceived to be inferior.⁵ Understanding this puzzle has important implications for counterinsurgency operations considering the recent increase in female suicide bombers globally and their lethality. Structural conditions that are associated with higher levels of female suicide attacks can provide policy makers with some tangible avenues for change. While policy-making may be tangentially related or unrelated to individual motivations for women to become suicide bombers such as revenge or traumatic experiences, structural factors such as female political and educational access, and employment opportunities may be more easily mitigated.

We explore these issues in two periods: 1986 to 2000 and 2002 to 2016. There is some consensus in the terrorism literature as to whether the September 11, 2001 attacks in the United States signified a fundamental change in terrorism and how it has changed. In the post-9/11 period, terrorist organizations increasingly employ simpler plots, opting for bombs and indiscriminate killing.⁶ Accordingly, organizations are deploying suicide attacks more often, and their lethality is increasing.⁷ Therefore, we expect that female suicide attacks and the factors

associated with them have likely changed across these periods. In fact, in looking at the spread of suicide attacks for the duration of our studies (see Figure 1), there is a steady increase in the number of suicide attacks after 9/11. Using quantitative analysis, we explore two types of structural factors: factors that primarily affect women and factors that affect a state's general population. Factors that primarily affect women such as female political empowerment, female access to education, and employment opportunities for women may make women more vulnerable to recruitment as suicide bombers by terrorist organizations. Furthermore, general structural factors such as regime type, the presence of civil war, and ethnic fractionalization are indicated in the terrorism literature as factors that contribute to higher levels of suicide attacks in general, but we test whether they are significant indicators of female suicide attacks specifically.

Our analysis of female suicide attacks in these two periods suggests that there are relatively stable patterns in the factors that facilitate such attacks, with a few notable departures. First, we find that female political empowerment, educational access, and employment opportunities are statistically significant predictors of female suicide attacks in the post-9/11 period. Secondly, we find that democracy is a consistent predictor of female suicide attacks in both the pre- and post-9/11 periods, supporting Pape's (2005) argument that democracies are more likely to witness suicide attacks. Third, we find that the presence of civil war was significant only in the latter time period, though, against expectations, it had a negative relationship with female suicide terrorism. Finally, we find that ethnic fractionalization is a significant predictor in both periods, though it is associated with a decrease in female suicide attacks in the former period and an increase in the latter period.

The balance of the article proceeds as follows: we discuss the suicide terrorism literature and offer our main arguments. We describe the methods we use to explain variation in the number of female fighter suicide attacks and discuss the results of our analysis. We explore some of our findings before concluding with some potential extensions for our study.

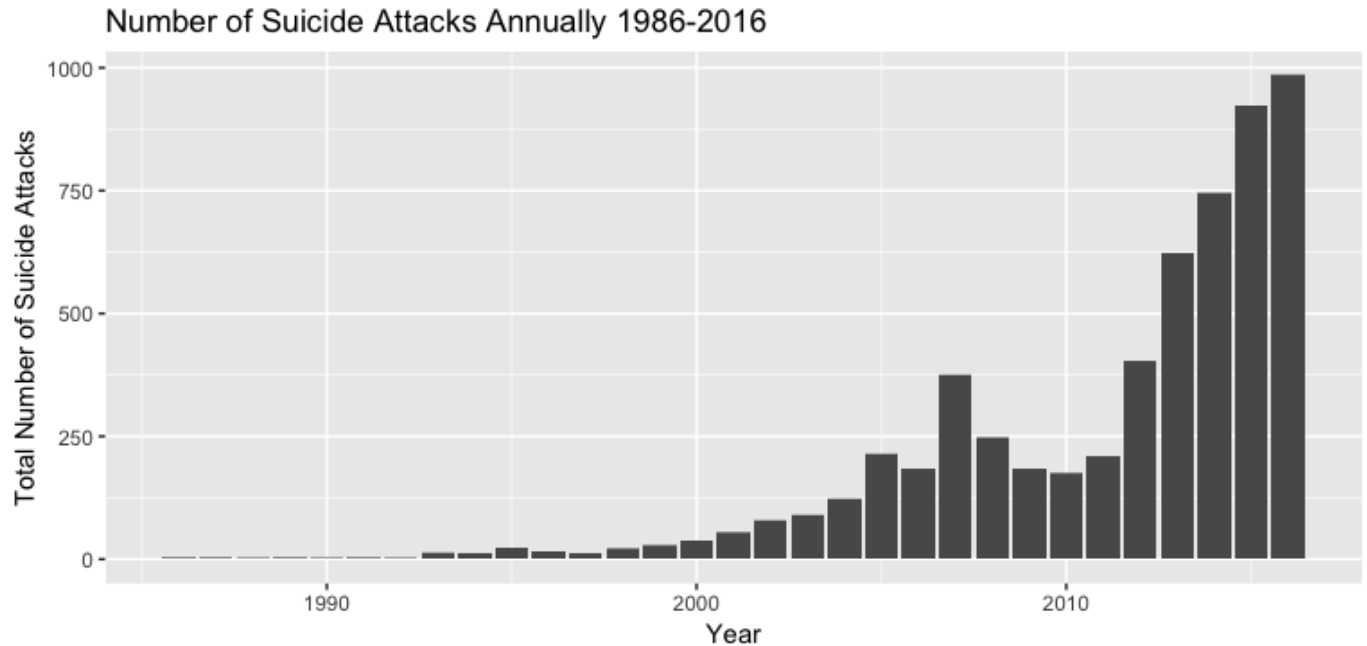


Figure 1

Literature

As Thomas and Bond (2015) note, the literature on women’s participation in political violence and violent organizations may be categorized into two categories: a “supply” side and a “demand” side (488-489). The supply-side studies explore factors that facilitate women’s participation in violent organizations while those in the demand-side category focus on organizations’ recruitment of women. We begin with a review of demand-side studies, a body of literature that includes a growing number of studies about the rationale for violent organizations to recruitment female members, particularly female suicide bombers. We then move to a review of the supply-side literature, which can be further divided into individual and structural explanations for women’s motivations for joining violent organizations. While much recent research has focused on individual explanations for why women become suicide bombers, much less attention has been paid to structural explanations, hence the motivation for this study.

Demand-Side Studies

While some violent organizations such as the Liberation Tigers of Tamil Eelam (the LTTE) and the Irish Republican Army (IRA) have counted women among their ranks for years,

an increasing number of groups are employing women.⁸ Groups with female members tend to be older and larger.⁹ The group characteristic that has perhaps received the most attention in terms of its recruitment of women is ideology. Several studies have found that groups that espouse a secular, nationalist, or leftist ideology tend to have more female recruits.¹⁰ This is because such groups tend to value equal opportunities for men and women and are more likely to expand women's organizational roles, including leadership positions. These groups may attempt to attract female members by emphasizing issues such as gender equality, health care, and women's literacy.¹¹ For example, the LTTE recruited female members by promoting women's liberation.¹² Conversely, Islamist groups are less likely to have female members due to their conservative views on women's roles and rights.¹³

At the same time, Islamist religious groups have more recently started encouraging female participation.¹⁴ For example, Boko Haram, founded in 2002, espouses an anti-Western ideology and seeks to establish an Islamic caliphate in Nigeria. At the same time however, the group actively recruits female fighters, unlike other groups such as the Islamic State who do not legitimize female violence.¹⁵ In contrast to other groups, Boko Haram has deployed nearly 300-420 female bombers as of November 2017; these constitute over half of their suicide attackers.¹⁶

Debate remains as to whether women's participation in violent organizations is the result of groups' coercion or volunteerism. Several accounts argue that female participation may be more due their own choosing than is conventionally believed, due to societal portrayal of women as peaceful.¹⁷ In fact, there are several studies which emphasize the way that individual motivations lead women to become suicide bombers for an organization, which we review in the next section. However, there is also evidence that suggest that coercion does play a role in female recruitment. Outright coercion such as abduction and kidnapping may be rarer and specific to certain types of groups such as ethno-nationalist groups than exploitation.¹⁸ For example,

during the war in Mozambique (1976–1992), the Frelimo government force recruited and gang-pressed girls to fight in the war against Renamo rebel forces. Frelimo recruiters arrived with buses at schools where they asked girls to volunteer for the military. When few agreed, girls were forced onto buses and taken to a military base where they met with other “recruited” girls and began military training.¹⁹

Accounts of female involvement in violent religious organizations suggest that societal and familial pressures drove women to “volunteer” to join these organizations.²⁰ Thus, these two paths to women’s participation in violent organizations are unlikely to be mutually exclusive.

Organizations may want to recruit female members for a variety of reasons and roles. First, women participating in terrorist groups may have more social capital than their male counterparts, both in-person and online.²¹ Due to their strong connections, terrorist organizations may be more likely to use women for recruitment.²² In Al-Shabaab for example, female recruits may fundraise for the organization (even in Somali diasporas), recruit male relatives and community members, recruit other women, and procure information from community members who may not be comfortable disclosing to members of the organization.²³ Furthermore, women may be more likely to receive information because they are less likely to be perceived as a threat.²⁴ Female members may also be used for fundraising and providing medical aid to terrorist organizations.²⁵

As these roles suggest, women are more likely to hold roles outside of combat.²⁶ However, contrary to the common image of women as non-violent actors, several studies have shown that females take on combat roles, albeit less commonly than men.²⁷ For example, women made up a significant portion (30-35%) of the Eritrean Liberation Front (ELF) during Eritrea’s struggle for independence in the 1990s.²⁸

A type of combat role that women are increasingly playing in terrorist organizations is that of suicide bomber. Secular and nationalist groups such as the Syrian Social Nationalist Party began using female bombers in the mid-1980s.²⁹ However, the use of female suicide bombers increased notably at the end of the 20th century¹, with several years witnessing 10-20 such fighters globally.³⁰ One prominent example was the Chechen “Black Widows” who made news headlines in the early 2000s.³¹ Both religious and secular groups are increasingly employing female suicide bombers due to their effectiveness.³²

Female suicide bombers are deadlier than their male counterparts mostly due to gender norms. First, women are often portrayed as “softer” and less violent than men, thus lowering suspicions about their involvement with terrorist activities.³³ Secondly, female suicide bombers can don robes or head coverings to conceal bomb belts, and women can leverage cultural

¹ By contrast, more years are in the 10-20 bomber range in the post-9/11 period, with 2015 (approximately 120) and 2008 (approximately 40), respectively, witnessing the largest number of female suicide attackers (Okowita 2017).

concerns about male security guards patting down women to penetrate security.³⁴ This allows female bombers to get closer to their targets, increasing the number of fatalities.

Groups have additional reasons for strategically choosing female suicide bombers. Female members are less likely to be in leadership positions, thus making them more expendable.³⁵ Furthermore, the successful use of female suicide bombers has a greater shock value when reported in the media, which may work to the group's advantage.³⁶ This is due to the gender stereotype that women are less violent than men.

Wafa Idris' suicide attack in 2002 illustrates some of the ways in which the shock value of deploying female suicide bombers may be advantageous for groups. In that year, Idris carried out a suicide bombing in Jerusalem that killed one person and injured 100 others.³⁷ This attack and its aftermath proved advantageous for the group claiming the attack, the Al-Aqsa Martyrs Brigade, as the incident was widely covered by the media, potentially drawing more suicide bombers to the group.³⁸ Additionally, the Israeli government's shocked reaction indicated that subsequent attacks could "undermine Israeli security and force Israel to negotiate from a position of weakness".³⁹

Supply-Side Studies

Studies that address the reasons why women join violent groups and/or become suicide bombers, termed as "supply-side" studies, may be further delineated into two sub-categories: individual motivations and structural facilitators.⁴⁰ A bevy of studies have been conducted in the former sub-category, many of which analyze the profiles of individual women who have engaged in violence. Several studies in this sub-category examine individual motivations for female suicide bombers specifically.⁴¹ Many studies have explored the structural factors that encourage women to participate in violent organizations. However, as we demonstrate in this section, few studies explore the structural reasons for women to become suicide bombers. We first turn to individual motivations before discussing the extant literature on structural factors.

Individual Motivations

There is debate as to what extent individuals' psychological profiles impact their decisions to engage in violence. Several studies argue that women who become suicide bombers are more likely than men to be victims of trauma, which makes them susceptible to groups'

recruitment.⁴² Women may have several reasons to join violent organizations: “They may enter a force for ideological reasons, to fulfill a compulsory obligation, escape poverty, and/or seek opportunities such as employment or sponsorship in school.”⁴³ The example of the Chechen “Black Widows” supports this claim. After enduring the deaths of their husbands during Chechnya’s struggle for independence, several women, motivated by revenge, were recruited for suicide missions.⁴⁴ Furthermore, women who are victims of sexual assault may be more likely to become suicide bombers to restore family honor.⁴⁵ However, several scholars argue that trauma alone does not lead people to become suicide terrorists.⁴⁶ As Atran (2003) states, explaining suicide terrorism in terms of individuals’ characteristics is a “‘fundamental attribution error,’ a tendency for people to explain behavior in terms of individual personality traits, even when significant situational factors in the larger society are at work” (1536). In other words, it may be structural factors that are the ultimate determinants of peoples’ decisions to volunteer as suicide terrorists.

Structural Facilitators

There are several structural factors that are associated with female participation in violent organizations and suicide bombing in general including: political access, regime type, discrimination, educational attainment, and economics. To our knowledge, these factors have not yet been systematically tested as determinants of female suicide bombing. There is disagreement as to whether political grievances encourage female participation in violent organizations. Several studies argue that a lack of political access does facilitate women’s participation in violent groups.⁴⁷ In fact, Dalton and Asal (2011) find that participation in terrorist organizations is an “alternative political opportunity [for women] to achieve greater gender equity by fighting alongside men, particularly if gender inequality was not addressed by the state or dominant political system” (805). However, other studies find no relationship.⁴⁸ The later may be because “politically active women seem to have been pulled into clandestine activism by their already strong participation identities”.⁴⁹

The literature on suicide terrorism and regime type has not examined female suicide terrorism explicitly, to our knowledge. There is little agreement among these studies. Several studies find that regime type is not a significant predictor of suicide terrorism.⁵⁰ However, other

accounts suggest that democracies are more susceptible to suicide terrorism since they are more likely to make concessions with terrorists to stop further loss of life.⁵¹ Pape (2003) notes,

[. . .] the testimony of target state leaders is often especially telling; although states like the United States and Israel virtually never officially admit making concessions to terrorism, leaders such as Ronald Reagan and Yitzhak Rabin have at times been quite open about the impact of suicide terrorism on their own policy decisions (351).

He highlights concessions in a variety of contexts, including Israel with Lebanon in 1985 and with Palestinians from 1994 to 1997, among others (352). This is because democracies tend to be more responsive to public opinion, given that political elites wield power by virtue of being voted into office by their constituents. However, it is unclear whether this relationship will hold when focused solely on female suicide bombers, a puzzle to which we later return.

Social marginalization has been demonstrated to affect both female participation in violent organizations and suicide terrorism in general. Toward the latter, Piazza (2011) finds that minority discrimination, particularly in democracies, is associated with higher levels of suicide terrorism. Furthermore, contextual factors more likely to be associated with a higher number of female terrorists are gender discrimination, violence against women, and social suppression.⁵² As stated in Dalton and Asal (2011), “When women are socially repressed and economically dependent, some may attempt to challenge the status quo by advancing their social justice agenda via alternative means” (811). Interestingly, Thomas and Bond (2015) find that a state’s ratification of the Convention on the Elimination of all Forms of Discrimination Against Women (CEDAW) has no effect on female participation in violent organizations. This may be due to properties of their sample (19 African countries) and may have a different result if tested on a larger global sample, or it may reflect that countries who ratified the agreement are more likely to address gender discrimination in the first place.

There is disagreement as to the role of education in the radicalization of women, with some studies finding that female terrorists are more likely to achieve a higher level of education⁵³ and others discovering that a lack of educational opportunities being associated with higher levels of female terrorists.⁵⁴ Yet still more studies suggest that education levels have little to no impact on participation in violent organizations.⁵⁵ Thus, this relationship warrants further examination, particularly in the context of female suicide bombers, as we explore in this study.

Finally, there are mixed results as to the impact of economic factors on participation in violent organizations. Some studies suggest that poverty is not a predictor of why people become terrorists.⁵⁶ However, several others find evidence of a significant relationship between economic conditions and participation in violent organizations. First, Young and Findley (2011) discover that a state's overall level of economic inequality is more likely to be associated with suicide terrorism. Relatedly, a loss of employment opportunities and underemployment may also be predictors of participants' involvement in terrorist organizations.⁵⁷ These findings are supported by studies solely focused on female participation in violent organizations. Female terrorists are less likely to be employed due to a lack of economic opportunities.⁵⁸ Furthermore, women are more likely to be attracted to groups that adopt a redistributive ideology, such as leftist groups, due to economic grievances.⁵⁹ Taken together, these studies suggest that economic inequality and grievances are likely significant predictors of the contexts in which women are more likely to become suicide bombers, which we test systematically in this study.

Argument and Hypotheses

We argue that female political access or empowerment⁶⁰ and its relationship with female suicide attacks necessitates further examination. Terrorism in general is used to gain concessions through “the power to hurt”.⁶¹ Theoretically, acts of terror may be used instead of other mechanisms if routinized political and social access is blocked. Turning to unconventional forms of political expression may be particularly appealing to women, who are historically denied access to participation more often than their male counterparts. This may be due to discrimination that is both institutionalized and normalized in their societies. Women may feel aggrieved and/or without other avenues to make their voices heard if blocked from institutionalized political access such as voting rights, the ability to run for political office, and guaranteed civil liberties. Furthermore, even if women are not institutionally repressed, they may be effectively repressed by prescribed societal norms about women’s roles. In terms of political access, this could include views about women belonging in the home as a caretaker instead of in the voting booth or running for political office.⁶² In cases of barred political access, women could find reprieve in terrorist organizations where they can contribute to making a change even as a violent actor and possibly a suicide bomber. Therefore, we elaborate on Young and Findley’s (2011) finding of no relationship between political access and suicide terrorism by probing the relationship between female political access and female suicide terrorism. We argue that more female political access is likely to be associated with lower levels of female suicide attacks. With greater political access, women are more likely to participate in politics and make their voices heard through conventional channels such as voting, civil society participation, running for office, and protesting.

H1: Female political empowerment is associated with lower levels of female suicide attacks.

As mentioned, there is debate in the terrorism literature as to the relationship between education and terrorism perpetuated by women. Some studies argue that, like men, female terrorists tend to be highly educated.⁶³ Others posit that a lack of education or educational opportunities is likely to be associated with higher levels of female terrorism.⁶⁴ Furthermore,

some find that there is no relationship between educational levels and individual motivation for joining a terrorist organization.⁶⁵

We test this relationship due to the disagreement on this issue and the lack of empirical testing of this relationship between education and female suicide terrorism specifically. We believe that like barriers to political access, barriers to education may make females more likely to become suicide bombers. Women may be denied access to education both institutionally and due to societal perceptions. They may be legally barred from school or effectively denied access for reasons such as early marriage.⁶⁶ To illustrate, in their study of al-Shabaab, Ndung'u et al (2017) find that women specifically may be more vulnerable to recruitment because the lack of educational access will likely limit their employment opportunities, though it is unclear if the organization is only attempting to recruit less educated women (38). Due to limited resources, low-income families may be only able to fund some of their children's education; in many cases, parents opt to fund the education of their male children whose job prospects are better.⁶⁷ Women may be denied educational access due to societal views of women's roles as well, such as the belief that higher learning is not suitable for women.⁶⁸ Therefore, it is not that low levels of education are associated with an increased probability of a female becoming a suicide bomber, but rather that is the lack of access to an education that increases the probability. While grievance over educational barriers may play a role in facilitating female suicide bomber recruitment, we argue that this may be a political career opportunity a female can acquire without an education.

H2: Lower levels of female educational attainment are associated with higher levels of female suicide attacks.

Similarly, we believe that a lack of employment opportunities for women is more likely to facilitate the recruitment of female suicide bombers. Other studies have found that female terrorists generally are less likely to be employed than their male counterparts.⁶⁹ Additionally, Piazza (2011) finds that economic inequality, particularly of marginalized groups, is associated with an increase in terrorist attacks. We do not expect female suicide bombers to vary from this pattern. Women may be denied a lack of employment opportunities due to social norms about women's roles. Such norms can prohibit women from seeking employment outside the home, from working full time, or from seeking employment at all.⁷⁰ Even if women can procure a job

outside the home, they often make less than their male counterparts.⁷¹ As Ndung'u et al. (2017)'s interviews of former female al-Shabaab fighters indicate, a lack of employment opportunities facilitates female recruitment, especially in areas controlled by the organization. Interviewees noted that al-Shabaab recruiters enticed would-be fighters through the promise of employment, income, and material goods.⁷² For example, one interviewee stated that "poverty was 'pushing people to al-Shabaab; if one is earning Ksh 3,000 [US\$28] but is promised Ksh 26,000 [US\$250] [by al-Shabaab], that is a lot of money and the person will choose to join al-Shabaab'."⁷³ Thus, a lack of adequate employment opportunities might not only activate grievance but limit the opportunities women have to make ends meet.

H3: Higher female employment rates are associated with lower levels of female suicide attacks.

Additionally, we test the effects of three general structural factors on the level of female suicide attacks: regime type, the presence of civil war, and cultural diversity/ethnic fractionalization. The terrorism literature presents mixed findings about the relationship between regime type and terrorist incidents. Some studies find that regime type does not have a significant relationship with domestic terrorism⁷⁴ or suicide bombings.⁷⁵ However, some note that regime type does have an influence on a state's level of terrorism.⁷⁶ Pape (2005) finds that democracies are more likely to experience suicide attacks because they are more likely to grant concessions to groups perpetuating the attacks. This is because democratic political leaders have an incentive to be responsive to public opinion and if they do not adequately respond to terrorist attacks, they may be voted out of office.

We believe that a higher level of female suicide terrorist attacks may be associated with democracies not only because democratic leaders tend to grant more concessions to perpetrators, but also because one of the tactical advantages for groups to deploy female suicide bombers is its shock value. As mentioned, female suicide attacks tend to be more shocking than attacks by their male counterparts, partially due to the popular image of women as non-violent actors.⁷⁷ Thus, we believe groups are more likely to deploy female suicide bombers in democracies as democratic leaders are even more likely to grant concessions, since such an attack would likely solicit the attention of the public and public demands for action. Therefore, we believe female suicide

attacks will parallel suicide attacks in general: democracies are more likely to witness a larger number of female suicide attacks than other regime types.

H4: Democratic regimes are associated with higher levels of female suicide attacks.

As in democracies, countries during civil conflict may lead to increased levels of female suicide attacks but for different reasons. These conflicts constrain resources and can suspend typical societal norms during wartime. An incumbent state may divert its counterinsurgency military and law enforcement forces to an internal enemy, while other groups may feel emboldened to attack it. Previous studies have found that terrorism is most prevalent during and after civil war.⁷⁸ It may be that civil wars create a theater for political violence, and violent organizations seek to demonstrate resolution to the incumbent. Building on this, Thomas (2014) finds that terrorist groups that execute more attacks during civil conflict are also more likely to be invited to participate in negotiations and gain concessions. Terrorist groups may wield female suicide bombers as a means to achieve maximum casualties during this time and achieve their goals. While incumbent governments may divert their security forces during civil conflict, their security apparatuses may be heightened during wartime. Violent organizations may turn to the use of female suicide bombers to infiltrate targets during civil conflict.

H5: The occurrence of civil war is associated with higher levels of female suicide attacks.

Finally, we address ethnic pluralism. We believe that greater diversity, especially among ethnic groups, may be more likely to be associated with higher levels of female suicide attacks due to increased competition for resources between ethnic groups. Ethnic groups may alternatively be conceptualized as ethnic nations. Primordial scholars such as Geertz (1973) note that people retain “primordial attachments” to the other groupings to which they belong such as families, religions, or communities, even if they are a part of a larger identity group such as a state. Furthermore, these ethnic nations are often “imagined communities” where the connection between individuals is not necessarily based on any social interaction between them but rather membership of the ethnic group.⁷⁹ Individuals who are members of the same ethnic group are connected through shared history, traditions, myths, cultural norms, ancestral land, and often religion and/or language. Such connections not only identify members within the ethnic group but also those outside of it. Research on contact between members of an ethnic group and those

outside of it to date has mixed findings: contact between individuals of different groups (“ingroups” and “outgroups”) “often reduces but sometimes exacerbates prejudice; prejudice reduction requires equal status, common goals, intergroup cooperation, support of authorities, law, or custom.”⁸⁰ Thus, intergroup cooperation must be facilitated by institutions or other authorities. Accordingly, we argue that greater ethnic diversity is more likely to be associated with female suicide attacks and suicide attacks generally. As Pape (2005) demonstrates, suicide attacks can facilitate groups receiving concessions from the government. If one group uses this method and realizes their goals, it might encourage others to do so. This may be more pronounced in the case of female suicide bombers due to their increased effectiveness.⁸¹

H6: Higher levels of ethnic fractionalization or cultural diversity are associated with higher levels of female suicide attacks.

Table 1. Descriptive Statistics

<i>Statistic</i>	1986-2000					2002-2016				
	<i>N</i>	<i>Mean</i>	<i>St. Dev.</i>	<i>Min</i>	<i>Max</i>	<i>N</i>	<i>Mean</i>	<i>St. Dev.</i>	<i>Min</i>	<i>Max</i>
Female fighter suicide attacks	49	0.61	2.75	0	18	120	0.68	2.66	0	25
Female educational attainment	49	5.80	3.42	0.76	12.64	120	7.50	3.46	1.27	14.61
Female political empowerment	49	0.49	0.15	0.21	0.79	120	0.55	0.14	0.17	0.95
Female employment rates	49	24.05	14.70	5.50	69.74	120	24.57	14.84	10.30	61.95
Democracy	49	4.47	2.57	0.25	8.25	120	4.42	2.54	0.00	10.00
GDP	46	2,835.23	3,745.69	274.99	12,860.51	120	6,267.57	10,123.38	421.95	66,346.52
Cultural diversity	49	0.29	0.18	0.00	0.68	119	0.29	0.15	0.00	0.68
Ethnic fractionalization	47	0.41	0.25	0.05	0.85	117	0.46	0.23	0.05	0.85
Population	49	111,437,061	239,444,135	1,949,938	1,178,440,000	120	114,320,356	249,215,600	1,590,780	1,331,260,000
Civil war	49	0.96	0.98	0	5	119	1.72	0.90	1.00	4.00
Total suicide attacks	49	2.78	10.29	0	69	120	23.27	88.71	0	765

Research Design & Data

Because we focus on changes in the pre- and post-9/11 time period, we split our models into two sets: 1986-2000 and 2002-2016. We set these time periods based on a combination of data availability and an even distribution of years before and after 9/11. Because we use a count outcome variable, we estimate a series of Poisson models to determine the influence of various factors on the number of female fighter suicide attacks.⁸² Our models incorporate both key independent variables, controls, and some alternate data specifications. We organize our models into female-specific factors, state-level structural factors, and a combination of both. Female-specific models incorporate factors related to women only, with limited controls. Structural factors are based on state-level factors that may contribute to overall conditions that may lead to greater number of female fighter suicide attacks. Combination models incorporate relevant factors from previous models. We incorporate multiple models to view trends in state-level influences on overall structures and the female population. We evaluate if the structural factors that explain the variation in suicide attacks overall, according to the political violence literature, similarly explain trends in female-fighter suicide attacks.

We draw our data from two datasets. First, we use the Chicago Project on Security and Terrorism Suicide Attack Database (CPOST-SAD) as inclusion criteria, which only captures suicide attacks. We select for all attacks with female attackers to construct our outcome variable (*femattacks*). This constructs a count variable, with variation existing on the presence and number of female fighter suicide attacks per group.

After selecting for this data, we determined the home bases of included groups. We do this for two reasons. First, we use the home bases to state-level explanatory indicators. This is because we are looking for the structural indicators for the use of a specific group of suicide bombers. It would not matter where the attack is: it matters where the attacker comes from, which, for the purposes of this analysis, we assume that the attackers are from the home base.

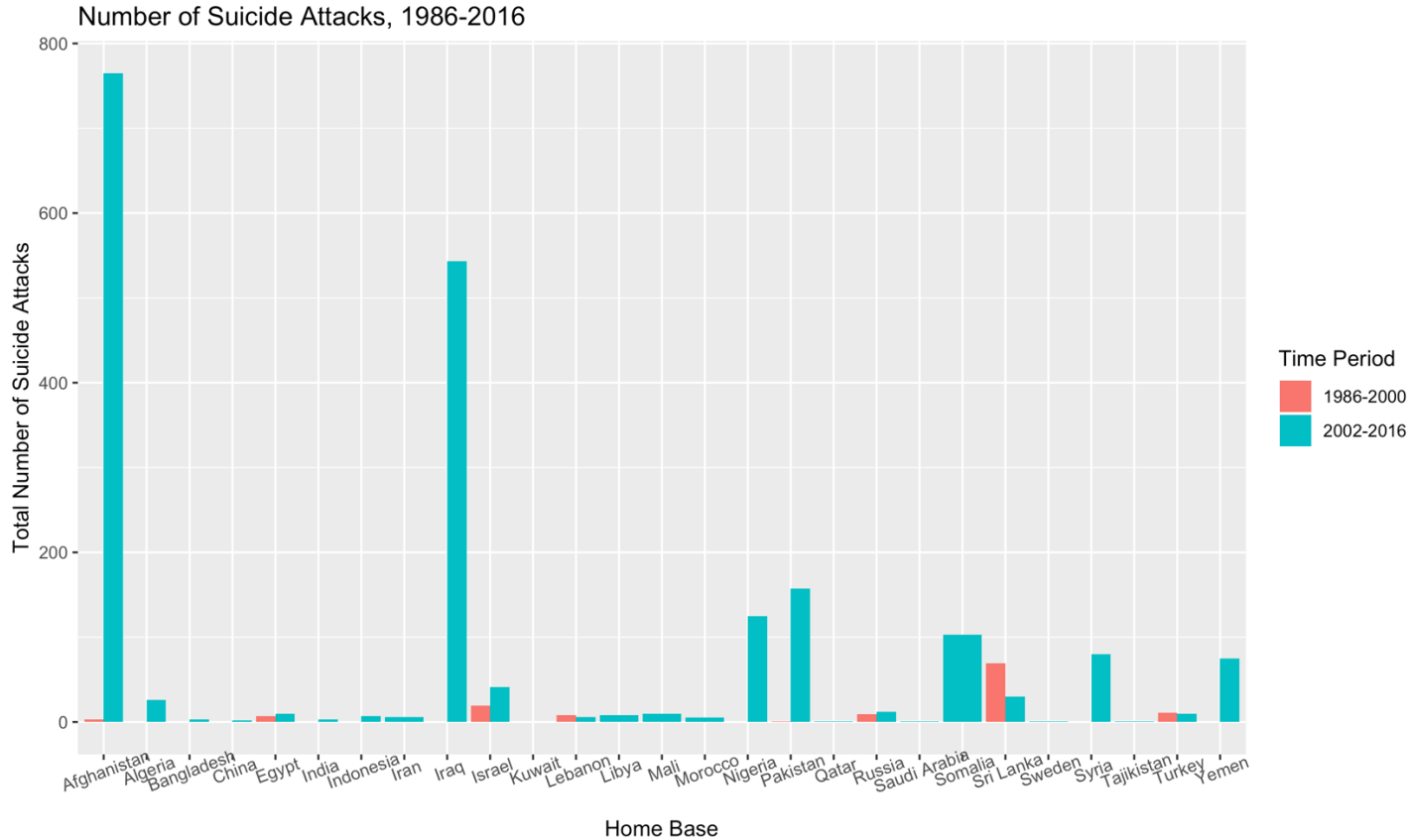


Figure 2

Figures 2 and 3 show the distribution of suicide attacks and female fighter suicide attacks across both time periods in our sample from CPOST. Attacks are filtered by the terrorist group’s home base. Across the two periods, a clear increase in both overall and female fighter suicide attacks exists the later time period. Most countries saw only increases in attacks shifting from the pre-9/11 to the post-9/11 time period. Interestingly, the attacks only decreased in a few instances for both total suicide and female fighter suicide attacks, including Sri Lanka, Lebanon, and Turkey.

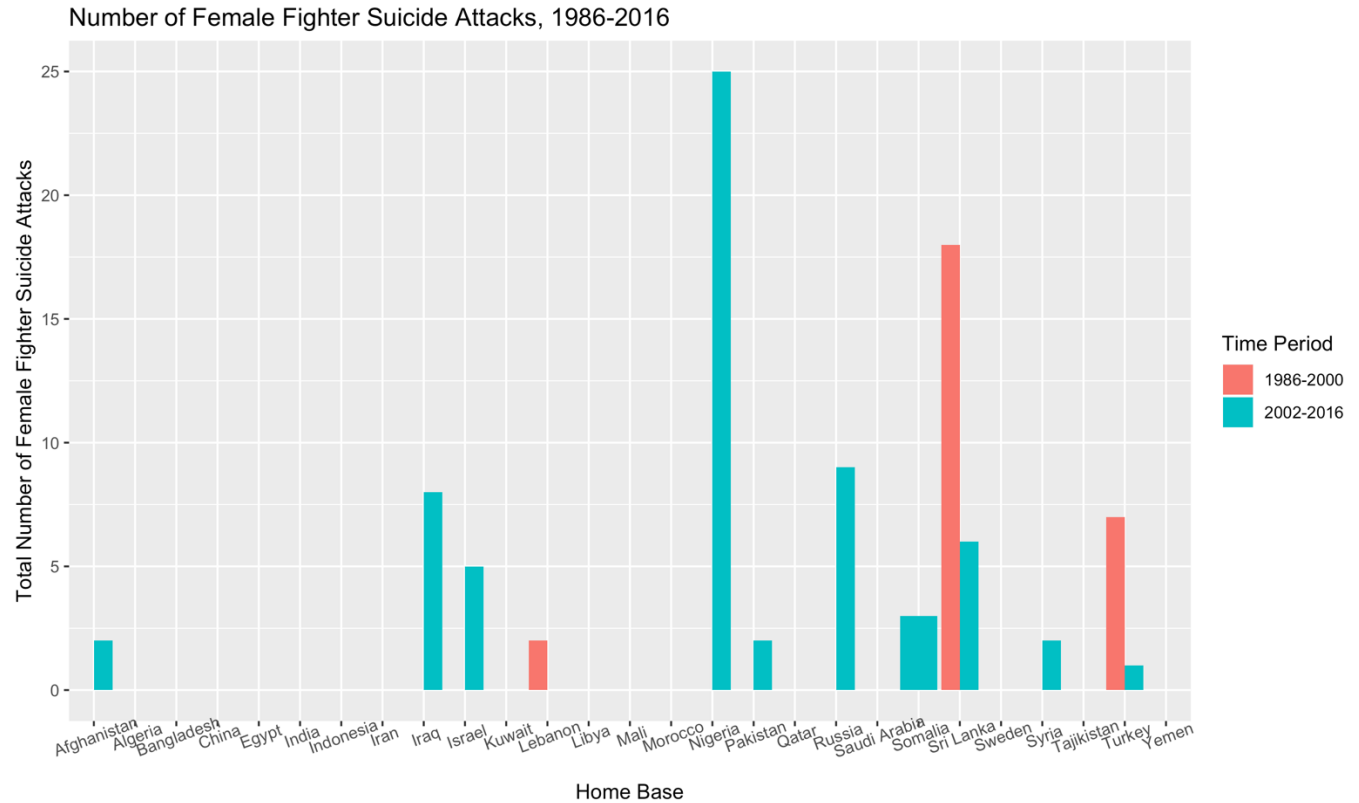


Figure 3

Our primary independent variables come from the Quality of Government (QOG) dataset. The data is taken from the time-series dataset and collapsed by country for each time period using a measure of central tendency: we use the median except for the female educational attainment variable, where we use the mean (see Table 1 for descriptive statistics)⁸³. Independent variables are then matched with each group’s home base country. The home base country is our unit of observation.

We turn first to our female-specific variables. To date, the literature has largely ignored female-specific factors associated with female fighter suicide attacks. We use the female-specific models to make inroads in this regard. We use variables from multiple datasets hosted in QOG. We use the Varieties of Democracy Project’s women’s political empowerment index (*vdem_gender*) to operationalize **female political empowerment**.⁸⁴ With greater access to formal political avenues, women may be less inclined to join informal avenues, such as terrorist groups, to find political leverage. Similarly, women with greater economic opportunities may find ways to afford greater economic and political capital and achieve their goals and therefore,

be less likely to turn to unconventional practices in order to do so. **Female employment rates** are operationalized using the World Bank's modeled ILO estimate of employment to population ratio for females 15 and over (*wdi_empprfile*). This is defined as the ratio of employed females in this age group to the population. The promise of political and economic parity may contribute to conditions that dissuade female fighters; higher employment rates may correlate with a lower likelihood of female fighter suicide attacks. Some literature indicates that individuals with higher education may be more inclined to follow through on suicide attacks.⁸⁵ Generally, these studies indicate that these individuals may more inclined to be goal oriented and able to follow through on commitments. However, we believe that the lack of access to education may facilitate female suicide attack recruitment. For **female educational attainment**, we combined the Institute for Health Metrics and Evaluation's data⁸⁶ for female educational attainment for 15-24 and 25-34 years (*gea_ea1524f* and *gea_ea2534f*, respectively).

Turning next to our set of structural variables, **democracy** is operationalized using the level of democracy variable (*fh_ipolity2*) from Freedom House and Imputed Polity (Freedom House 2018), where the average of Freedom House and Polity variables are transformed to a scale of 0-10. Missing Polity values are imputed by regressing Polity on average Freedom House measures.⁸⁷ Democratic countries are likely to have conditions that are inclusive of genders and provide alternatives to violence;⁸⁸ in these structural, female fighters are less likely to be willing suicide fighters. While democracy may contribute to an environment where female fighters are less likely to engage in suicide attacks, constraints and scarce resources during wartime are more likely to contribute to female fighter recruitment to groups and subsequently attacks. The variable for **civil wars** is operationalized with a combination of the internal armed conflict (*ucdp_type3*) and internationalized internal armed conflict (*ucdp_type4*) from QOG. Together, this variable constitutes a count of all internal conflicts between internal armed groups and domestic and international governments. In addition to civil war, the diverse societal composition may lead to discrimination⁸⁹ and contribute to increased female fighter involvement in suicide attacks. Ethnic fractionalization is operationalized using the Alesina et al. (2003) ethnic fractionalization variable (*al_ethnic*), which captures the probability that two randomly selected people in a state will not share racial and linguistic characteristics. An alternate specification of ethnic fractionalization is Fearon's (2003) **cultural diversity** variable

(*fe_cultdiv*). This also includes a measure for the cultural distance between ethnic and linguistic groups.⁹⁰ We alternate diversity measures as a robustness check.

Turning finally to our controls, we take a variable for **total suicide attacks** (*totalattacks*) from CPOST. We employ this as a reference to control for any patterns we may see due to overall numbers of suicide attacks. We control for any the possible influence of **population levels** of increased female suicide attacks using the World Bank's population variable (*wdi_pop*). We control for the effect of the **economy** using the World Bank's GDP per capita in current US dollars (*wdi_gdpcapcur*).

Results & Discussion

Across the two time periods, the patterns are similar, with interesting departures in the second. The consistency in the overall trends across both time periods may be an indication that our models captured relatively stable patterns. Our results are depicted in Tables 3 and 4, which cover the pre- and post-9/11 periods, respectively. We also include Table 2 as an overview of support for and against our hypotheses.

The combination models across both time periods were the best fit for each time period; however, different variables were notable predictors in each. In the earlier period's combination model, democracy has a significant, positive effect on female suicide attacks while female political empowerment has a significant, negative effect. This indicates that while the democratic environment can foster more female fighter suicide attacks, the political parity of women does not drive that trend: there is another mechanism that may be doing so. This relationship was inverted in the second period's combination attack, which would indicate that overall democratic conditions contribute to fewer attacks, but that lower female political empowerment specifically can contribute to a greater number of attacks. Piazza's work denotes that economic inequality can lead to conditions of marginalization where domestic terrorism may increase.⁹¹ A similar logic may explain this finding specifically in the case of female political inequality: where democratic conditions may have improved in the post-9/11 time period (2002-2016), they may not have improved sufficiently for marginalized women, who may turn to non-traditional means of voicing concerns and achieving political goals. Female educational attainment had a significant and positive effect in both combination models, which contradicts H2 but supports findings about educational levels in the broader terrorism literature. For example, Jacques and

Taylor (2013) who find that female terrorists are more likely to acquire higher levels of education. Interestingly, this variable is only significant in the combination models, indicating that the social, economic, and political context of this is relevant and is affected by structural factors.

We found female employment was significant in both time periods but in different models. In the earlier period, it was only significant – and negative – in the earlier time period’s combination model, consistent with H3. This indicates that employment opportunities could contribute to fewer female fighter suicide attacks, but it may not be a primary explanatory factor. Female employment was significant and positive in one of the latter female-specific models, highlighting that it could correlate with more female fighter suicide attacks. This provides partial support to previous studies that highlight the role of economic inequality and attainment with increased instances of terrorism.⁹² However, these variables do not distinguish between part-time and full-time work. If our model is only inclusive of full-time work, a different trend may become apparent with the inclusion of part-time work. A juxtaposition of the results of the combination models indicate a seeming shift in the effect of opportunities for women and their participation in suicide attacks. Some of the most interesting differences exist in the later combination model, highlighting divergent trends in the post-9/11 time period.

In the later time period, we find that female political empowerment, ethnic fractionalization, and civil war are particularly relevant. In support of H1, female political empowerment was positive and significant in more models in the later time period. As previously discussed, it is interesting that in the earlier time period, it was significant in the combination model but had a negative effect. This overall trend in the later period could highlight that political barriers that females face may appear to be insurmountable through conventional political means. Alternatively, it could also be that increased political empowerment may not be a sufficient or a desirable avenue for political access, thereby leading to unconventional ways to achieve political ends.

In addition to female political empowerment, ethnic fractionalization and cultural diversity both have an overwhelming positive and significant effect in the post-9/11 time period, in support of H5. This is interesting in juxtaposition to the earlier time period, where only ethnic fractionalization was negative and significant in a single model. Increased ethnic and cultural plurality could be fodder for higher female suicide attacks after 9/11. This could be due to a few

reasons. First, 9/11, subsequent conflicts in the Middle East, and the 2011 Arab Spring may have exacerbated ethnic cleavages, which could translate to increase motivations for women to participate in unconventional attacks. A deepening of these cleavages could indicate an “othering” process between groups as they insulate themselves and compete for resources.⁹³ Second, this could be due to increased competition between terrorist groups who leverage ethnocentric ideologies. The post-9/11 period saw an increase in the number of terrorist groups. Even in our sample, the pre-9/11 period was a sample size nearly a third of the post-9/11 period. More groups could be vying for concessions from the government⁹⁴ and leveraging an effective tactic – female suicide bombers⁹⁵ – to signal their resolution and realize their goals.

Similar to interethnic group competition, civil war brings its own type of competition, as a scarcity of resources can influence the likelihood of female suicide attacks. Contrary to H5, civil war was significant and negative in a structural model in the later time period, denoting that civil war correlates with lower levels of female suicide attacks. The structural constraints during civil wars may contribute to fewer female fighter suicide attacks. Our results diverge from the extant literature that finds that terrorism is most common during civil wars.⁹⁶ Our results may indicate that suicide attacks differ from other forms of terrorism during civil conflict. However, our results bolster studies that find that groups use terrorism strategically during civil conflict to gain concessions from the incumbent government.⁹⁷

Finally, there is notable consistency in the positive effect of democracy across both time periods and across multiple models. In one part, this indicates that democratic environments correlate with greater female fighter attacks. This may support the literature that finds that the openness of democratic environments can foster the use of unconventional and violent tactics to achieve political aims,⁹⁸ as opposed to the formal political participation that is intended to prosper in these environments. In direct contravention of this, the sign is flipped in the combination model in the 2002-2016 time period, which provides support against H4, indicating that a democratic environment can decrease the conditions for female fighter participation in suicide attacks.

In addition to democracy, total suicide attacks were significant and positive across multiple models in both time periods. While more suicide attacks overall may be correlated with more female suicide attacks, a re-specification of the model with a ratio or a percentage of female fighter attacks as a percentage of total attacks may be more illuminating.

Table 2. Evaluation of Hypotheses	
Hypothesis	Support of hypotheses (time period, models)⁹⁹
H1: Female political empowerment is associated with lower levels of female suicide attacks.	+ Supported (pre-9/11, combination) – Not supported (post-9/11, female-specific and combination)
H2: Lower levels of female educational attainment are associated with higher levels of female suicide attacks.	– Not supported (pre-9/11, combination) – Not supported (post-9/11, combination)
H3: Higher female employment rates are associated with lower levels of female suicide attacks.	+ Supported (pre-9/11, combination)
H4: Democratic regimes are associated with higher levels of female suicide attacks.	+ Supported (pre-9/11, structural and combination) + Supported (post-9/11, structural) – Not supported (post-9/11, combination)
H5: The occurrence of civil war is associated with higher levels of female suicide attacks.	– Not supported (post-9/11, structural)
H6: Higher levels of ethnic fractionalization or cultural diversity are associated with higher levels of female suicide attacks.	– Not supported (pre-9/11, structural) + Supported (post-9/11, structural and combination)

Our previous discussion is exhaustive of our models, taken together, however, there are a few findings we would like to reiterate giving their novelty in light of the extant literature. First and foremost, our findings on female political empowerment diverge with other studies. We found that in the time period before 9/11, specifically 1986 to 2000, there was a negative relationship between female political parity and the number of female suicide attacks. In other words, higher levels of female political empowerment correlate with fewer attacks. Several studies find that measures of female political access have no statistically significant relationship on female participation in violent organizations.¹⁰⁰ We believe that our contrary finding may be due to several factors. First, it may simply be the operationalization of political access. For example, Henshaw (2016b) examines the relationship between organizations’ stated support for more political rights for women and women’s participation in these organizations. This is more about the organization itself and less about the political opportunities women have (a demand- vs. supply-side explanation). Furthermore, the V-Dem variable that we use is an aggregate measure which captures several different aspects of women’s political access. Secondly, our findings may differ from that of Thomas and Bond (2015) as our study may capture a global pattern while the former study may only capture patterns in one, albeit an important, region, Africa. Finally, it may be that there are different patterns in the violent organizations which recruit female members and those who specifically deploy female suicide bombers. While there is certainly overlap between those two groups, they are not identical.

However, our findings are consistent with studies that cite a relationship between expanded female political participation and fewer instances of violence.¹⁰¹ After 9/11, this relationship changes: female political empowerment is positively correlated with more female suicide attacks. This indicates a potential shift in access to political capital for women and the possible calculus to seek apolitical means to realize political goals or rights. This finding is interesting when taken in conjunction with the effect of democracy in both time periods, a second interesting contribution.

In the period before 9/11, democracy exerted a positive effect on the number of female suicide attacks, consistent with Pape's (2005) thesis that the openness of democracies can also make them more susceptible to suicide attacks. It is in this earlier period that female political empowerment also yields a negative effect. Taken together, this yields an interesting conclusion: democratic institutions may pave the way for more suicide attacks while at the same time reinforcing avenues for female political participation, which can yield a depressing effect on the number of suicide attacks. Conversely and interestingly, this relationship is flipped for the period after 9/11, where democracy has a negative effect on female suicide attacks, but political empowerment exerts a positive effect.

Table 3. Factors that Influence Female Suicide Terrorism (1986-2000)

	<i>Female-Specific</i>		<i>Structural</i>		<i>Combination</i>
	(3)	(4)	(1)	(2)	(5)
Constant	-0.195 (-2.340, 1.950)	-0.185 (-2.395, 2.024)	-0.416 (-3.352, 2.519)	-5.188** (-9.252, -1.124)	6.092 (-47.136, 59.321)
Female political empowerment	-6.408 (-14.257, 1.441)	-6.217 (-14.497, 2.063)			-284.741*** (-493.400, -76.082)
Female educational attainment	0.267 (-0.087, 0.621)	0.279 (-0.096, 0.654)			12.375*** (4.038, 20.713)
Female employment ratio		-0.008 (-0.067, 0.052)			-0.762* (-1.648, 0.124)
Democracy			0.248* (-0.041, 0.538)	0.832*** (0.312, 1.352)	7.165* (-0.619, 14.949)
Civil war			-0.557 (-2.919, 1.804)	2.302 (-0.923, 5.528)	29.751 (-38.789, 98.292)
Ethnic fractionalization			-5.668** (-11.041, -0.295)		
Cultural diversity				6.231 (-3.236, 15.698)	6.670 (-55.868, 69.208)
Population			-0.000 (-0.000, 0.000)	-0.000*** (-0.000, -0.000)	-0.000 (-0.000, 0.000)
GDP				-0.001*** (-0.001, -0.000)	
Total suicide attacks	0.074*** (0.056, 0.092)	0.074*** (0.055, 0.092)	0.069*** (0.050, 0.088)	-0.009 (-0.051, 0.034)	0.391*** (0.199, 0.582)
<i>Observations</i>	49	49	47	46	49
<i>Akaike Inf. Crit.</i>	77.330	79.265	73.065	66.958	44.117

* p < 0.1¹⁰² ** p < 0.05 *** p < 0.01

Table 4. Factors that Influence Female Suicide Terrorism (2002-2016)

	<i>Female-Specific</i>		<i>Structural</i>		<i>Combination</i>
	(3)	(4)	(1)	(2)	(5)
Constant	-3.855*** (-4.995, -2.716)	-2.790*** (-3.841, -1.738)	-1.924*** (-2.780, -1.068)	-2.805*** (-3.883, -1.727)	-7.369*** (-9.985, -4.753)
Female political empowerment	5.519*** (3.361, 7.677)	1.909* (-0.277, 4.095)			6.295*** (1.998, 10.593)
Female educational attainment	0.001 (-0.073, 0.074)	-0.054 (-0.121, 0.013)			0.127** (0.024, 0.231)
Female employment ratio		0.053*** (0.031, 0.075)			0.015 (-0.010, 0.041)
Democracy			0.200*** (0.104, 0.295)	0.147*** (0.046, 0.248)	-0.197** (-0.357, -0.037)
Civil war			-0.499*** (-0.817, -0.181)	0.011 (-0.361, 0.382)	0.150 (-0.169, 0.470)
Ethnic fractionalization			2.518*** (1.447, 3.588)		
Cultural diversity				4.731*** (3.301, 6.161)	6.184*** (3.829, 8.539)
Population	-0.000 (-0.000, 0.000)	-0.000** (-0.000, -0.000)	0.000 (-0.000, 0.000)	-0.000** (-0.000, -0.000)	
GDP				0.000* (-0.000, 0.000)	
Total suicide attacks	0.004*** (0.003, 0.005)	0.004*** (0.003, 0.005)	0.003*** (0.002, 0.004)	0.002** (0.0003, 0.003)	0.003*** (0.001, 0.004)
<i>Observations</i>	120	120	116	118	118
<i>Akaike Inf. Crit.</i>	376.617	356.011	378.532	366.879	321.995

* p < 0.1 ** p < 0.05 *** p < 0.01

Conclusion

The present study considers the state-level conditions under which terrorist groups use more female suicide bombers. A novelty of our results is the aggregation and comparison at the country level, which is useful in demonstrating broader trends in female suicide attacks. Our primary contribution regarding the positive correlation between female political participation and suicide attacks is divergent with the existing literature, which contends that female political engagement should lead to fewer instances of violence¹⁰³. More specifically, in the post-9/11 time period, our results found a positive relationship between female political empowerment, female educational attainment, and female employment rates with female suicide attacks. Most interestingly, before 9/11, female political empowerment was found to be significant and negative in instances where a democratic context was found to increase female suicide attacks. The opposite was the case after 9/11: female political empowerment was significant and positive while democracy was negatively associated with female suicide attacks. As a structural indicator, democracy generally yields a positive effect on female suicide attacks across both time periods and multiple models. Also significant in both time periods, ethnic fractionalization yields a negative effect before 9/11 and a positive effect after. These results have some implications for counterinsurgency (COIN) practices. For example, we found that high levels of education correlate with higher levels of female suicide attacks in combination models in both before and after 9/11. Targeted interventions could be designed and implemented in schools in areas of high recruitment.

However, it is not exactly clear why this might be the case. Further research should determine the mechanisms driving these results. Future work could determine how varying types of empowerment could affect the outcome differently. For example, as we postulated before: is there a difference between part-time and full-time employment on these results? Further, what level of education could potentially dissuade female suicide attackers, and what is the mechanism that could potentially drive that? Turning to structural factors: while civil war may seem a likely theater for increase female suicide attacks, further research could illuminate ways in which states could harden targets of these forms of attacks. Additional research could also find if any economic or political factors may drive females during civil conflict to turn to unconventional violence, such as engaging in terrorist activity.

We note that this study has some limitations that could be addressed in further research. First, the data could be extended before 1986 and after 2016. With a longer horizon, we may be able to capture Cold War and other pre- and post-9/11 trends more robustly. For example, the female political empowerment variable in the post-9/11 period has a large standard error, perhaps in part due to the limited number of observations in the sample. Extending the sample could ameliorate this. Second, studying this subject quantitatively at a lower level of analysis, such as the group- or campaign-level may also increase the number of data points and better depict trends. Third, our study does not account for attackers that may migrate transnationally and join groups away from their country of origin. In the context of regional conflicts, individuals may be motivated to join groups attacking perceived common enemies away from their home land. It may be relevant to run a parallel analysis for target countries and compare the results of home bases against those results. Fourth, we removed several observations in our outcome variable because they were listed as belonging to an “unknown group”. We could not add a home base country and other relevant country-level data to run our analyses. While this gave us a more limited sample to work with, it also made us think about why attacks would be categorized as belonging to an unknown entity. One possibility is the presence of lone wolf attacks. Such attacks may be part of divergent trends from suicide attacks from female fighters that originate in organizations: individuals’ motivations for becoming a lone suicide bomber may be different from those who join organizations as a suicide bomber.

There are several extensions that could build on our findings here. First, we think there is space for additional analyses to capture more nuanced structural aspects of female participation in suicide attacks. In many cases,¹⁰⁴ female suicide bombers are from developing countries, where the established power dynamic is patriarchal: it is made by and made in favor of men. In such societies, women may already participate in an environment where they are often coerced into various activities and therefore vulnerable to societal (i.e. patriarchal) pressures. We urge future studies to consider the long-term effects of patriarchalism and its effect on female participation in suicide attacks. This can be potentially operationalized through the interaction effect between regime type and economic development, taken together, as a predictor of female suicide bomber participation. Second, we could account for spatial effects in the study. The utilization of a spatial lag could inform how countries influence conditions within each other’s borders that can contribute to increased female suicide bombers. Specifically, most of the female

suicide attacks seem to be clustered in certain regions, such as the Middle East and North Africa (MENA) and Central Asia. With the incorporation of a spatial lag, we could find foundational evidence for the possibility of diffusion. In conducting the spatial analysis, we could also incorporate the use of various spatial weights (or *Ws*). The *W* could be in terms of countries' and groups' proximity to one another. It could also account for states' relations in terms of specific conflicts, such as groups and their home base states involved in the Israeli-Palestinian conflict or attackers and targets in Jammu-Kashmir.

In addition to spatial effects, we could also incorporate temporal trends. We could adjust our data to estimate a survival model to understand the structural, organizational, and tactical characteristics that can lead a group to use female suicide bombers. In other words, we can model "time to female suicide attacker", taking into account targets, organizational age, female-specific variables, and other indicators to understand their influence on utilizing female suicide bombers in attacks.

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Notes

¹ Pape, *Dying to Win*; Bloom, *Dying to Kill*; and Moghadam, "Suicide Terrorism, Occupation, and the Globalization of Martyrdom."

² Burgoon, "On Welfare and Terror"; Piazza, "Do Democracy and Free Markets Protect Us from Terrorism?"; Piazza, "Poverty, Minority Economic Discrimination, and Domestic Terrorism"; and Young and Findley, "Promise and Pitfalls of Terrorism Research."

³ Zedalis, *Female Suicide Bombers*; McKay, "Girls as 'Weapons of Terror' in Northern Uganda and Sierra Leonean Rebel Fighting Forces"; Ness, "In the Name of the Cause"; Jacques and Taylor, "Male and Female Suicide Bombers"; Speckhard, "The Emergence of Female Suicide Terrorists"; O'Rourke, "What's Special about Female Suicide Terrorism?"; Speckhard, "Female Suicide Bombers in Iraq"; Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries"; Manrique et al., "Women's Connectivity in Extreme Networks"; Mehra, "Foreign Terrorist Fighters"; Alakoc, "Femme Fatale"; and Donnelly, "Women in Al-Shabaab through a New War's Lens."

⁴ Weichselbaumer and Winter-Ebmer, "A Meta-Analysis of the International Gender Wage Gap"

⁵ Ness, "In the Name of the Cause"; and O'Rourke, "What's Special about Female Suicide Terrorism?"

⁶ Sandler and Enders, "September 11 and Its Aftermath"; and Santifort, Sandler, and Brandt, "Terrorist Attack and Target Diversity."

⁷ Bloom and Hynes, "The Increasing Lethality of Suicide Attacks in Iraq"; and Pape, *Dying to Win*.

⁸ Alison, "Women as Agents of Political Violence."

⁹ Dalton and Asal, "Is It Ideology or Desperation"; and Thomas and Bond, "Women's Participation in Violent Political Organizations."

¹⁰ Cunningham, "Cross-Regional Trends in Female Terrorism"; Alison, "Women as Agents of Political Violence"; Bloom, *Dying to Kill*; O'Rourke, "What's Special about Female Suicide Terrorism?"; Henshaw, "Why Women Rebel"; and Wood and Thomas, "Women on the Frontline."

¹¹ Reif, "Women in Latin American Guerrilla Movements"; and Thomas and Bond, "Women's Participation in Violent Political Organizations."

¹² Alison, "Women as Agents of Political Violence."

¹³ Ness, "In the Name of the Cause"; Jacques and Taylor, "Male and Female Suicide Bombers"; O'Rourke, "What's Special about Female Suicide Terrorism?"; Henshaw, "Why Women Rebel"; and Wood and Thomas, "Women on the Frontline."

¹⁴ Ness, "In the Name of the Cause"; Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries"; and Davis, "Evolution of the Global Jihad."

¹⁵ Pearson, "Wilayat Shahidat," 34.

¹⁶ Warner and Chapin, "Targeted Terror," 24.

¹⁷ Zerai, "Organising Women within a National Liberation Struggle"; Jacques and Taylor, "Male and Female Suicide Bombers"; and Speckhard, "Female Suicide Bombers in Iraq."

¹⁸ Ness, "In the Name of the Cause."

¹⁹ McKay, "Girls as 'Weapons of Terror'," 388.

²⁰ Victor, *Army of Roses*; and Cunningham, "Cross-Regional Trends in Female Terrorism."

²¹ Manrique et al., "Women's Connectivity in Extreme Networks"; Mehra, "Foreign Terrorist Fighters"; and Donnelly, "Women in Al-Shabaab through a New War's Lens."

²² See note 21 above.

²³ Ndung'u et al., "Violent Extremism in Kenya"; and Donnelly, "Women in Al-Shabaab through a New War's Lens."

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- ²⁴ Henshaw, "Where Women Rebel"; and Donnelly, "Women in Al-Shabaab through a New War's Lens."
- ²⁵ Donnelly, "Women in Al-Shabaab through a New War's Lens."
- ²⁶ Davis, "Evolution of the Global Jihad"; Henshaw, "Where Women Rebel"; and Henshaw, "Why Women Rebel."
- ²⁷ Reif, "Women in Latin American Guerrilla Movements"; Alison, "Women as Agents of Political Violence"; McKay, "Girls as 'Weapons of Terror'"; Ness, "In the Name of the Cause"; Viterna, "Pulled, Pushed, and Persuaded"; and Henshaw, "Where Women Rebel."
- ²⁸ Zerai, "Organising Women within a National Liberation Struggle."
- ²⁹ Ness, "In the Name of the Cause"; and Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries."
- ³⁰ Okowita, "Female Suicide Terrorism." By contrast, more years are in the 10-20 bomber range in the post-9/11 period, with 2015 (approximately 120) and 2008 (approximately 40), respectively, witnessing the largest number of female suicide attackers (Okowita 2017).
- ³¹ Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries"; Atran, "Mishandling Suicide Terrorism"; Bloom, *Dying to Kill*; and Ness, "In the Name of the Cause."
- ³² Ness, "In the Name of the Cause"; O'Rourke, "What's Special about Female Suicide Terrorism?"; Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries", and Alakoc, "Femme Fatale."
- ³³ Speckhard, "The Emergence of Female Suicide Terrorists"; Davis, "Evolution of the Global Jihad"; Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries"; Dalton and Asal, "Is It Ideology or Desperation"; Henshaw, "Where Women Rebel"; and Alakoc, "Femme Fatale."
- ³⁴ Dearing, "Agency and Structure as Determinants of Female Suicide Terrorism"; O'Rourke, "What's Special about Female Suicide Terrorism?"; Speckhard, "Female Suicide Bombers in Iraq"; Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries"; Royston, "A Qualitative Pattern Analysis of Suicide Terrorism"; Okowita, "Female Suicide Terrorism"; Alakoc, "Femme Fatale"; and Warner et al., "Suicide Squads."
- ³⁵ Speckhard, "The Emergence of Female Suicide Terrorists"; and Speckhard, "Female Suicide Bombers in Iraq."
- ³⁶ Ahmed, "The Growing Threat of Female Suicide Attacks in Western Countries"; Okowita, "Female Suicide Terrorism"; and Alakoc, "Femme Fatale."
- ³⁷ Cunningham, "Cross-Regional Trends in Female Terrorism."
- ³⁸ Cunningham, "Cross-Regional Trends in Female Terrorism."
- ³⁹ Cunningham, "Cross-Regional Trends in Female Terrorism," 183.
- ⁴⁰ Thomas and Bond, "Women's Participation in Violent Political Organizations."
- ⁴¹ Victor, *Army of Roses*; Zedalis, *Female Suicide Bombers*; Bloom, *Dying to Kill*; Jacques and Taylor, "Male and Female Suicide Bombers"; Speckhard, "The Emergence of Female Suicide Terrorists"; and O'Rourke, "What's Special about Female Suicide Terrorism?"
- ⁴² Bloom, *Dying to Kill*; Speckhard and Akhmedova, "Talking to Terrorists"; Dalton and Asal, "Is It Ideology or Desperation"; and Warner et al., "Suicide Squads."

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- ⁴³ McKay, "Girls as 'Weapons of Terror'," 388.
- ⁴⁴ Bloom, *Dying to Kill*; and Speckhard and Akhmedova, "Talking to Terrorists."
- ⁴⁵ Bloom, *Dying to Kill*.
- ⁴⁶ Atran, "Genesis of Suicide Terrorism"; Speckhard, "Female Suicide Bombers in Iraq."
- ⁴⁷ Dalton and Asal, "Is It Ideology or Desperation"; "Women and Terrorist Radicalization"; and Jacques and Taylor, "Myths and Realities of Female-Perpetrated Terrorism."
- ⁴⁸ Thomas and Bond, "Women's Participation in Violent Political Organizations"; and Henshaw, "Why Women Rebel."
- ⁴⁹ Viterna, "Pulled, Pushed, and Persuaded," 38.
- ⁵⁰ Wade and Reiter, "Does Democracy Matter?"; Piazza, "Do Democracy and Free Markets Protect Us From Terrorism?"; and Young and Findley, "Promise and Pitfalls of Terrorism Research."
- ⁵¹ Pape, *Dying to Win*; Krueger, *What Makes a Terrorist?*; and Jahanbani et al, A Lethal Metamorphosis.
- ⁵² Victor, *Army of Roses*; Dalton and Asal, "Is It Ideology or Desperation"; Jacques and Taylor, "Myths and Realities of Female-Perpetrated Terrorism"; and "Women and Terrorist Radicalization."
- ⁵³ Atran, "Genesis of Suicide Terrorism"; Zedalis, *Female Suicide Bombers*; Dalton and Asal, "Is It Ideology or Desperation"; and Jacques and Taylor, "Myths and Realities of Female-Perpetrated Terrorism."
- ⁵⁴ "Women and Terrorist Radicalization."
- ⁵⁵ Krueger and Malečková, "Education, Poverty and Terrorism"; and Krueger, *What Makes a Terrorist?*
- ⁵⁶ See note 53 above.
- ⁵⁷ Atran, "Genesis of Suicide Terrorism."
- ⁵⁸ "Women and Terrorist Radicalization"; and Jacques and Taylor, "Myths and Realities of Female-Perpetrated Terrorism."
- ⁵⁹ Cunningham, "Cross-Regional Trends in Female Terrorism"; Eager, *From Freedom Fighters to Terrorists*; and Henshaw, "Why Women Rebel."
- ⁶⁰ We adopt Sundström et al.'s (2015) tripartite definition of female political empowerment consisting of female civil liberties, civil society participation, and political participation.
- ⁶¹ Schelling, *Arms and Influence.*; and Thomas, "Rewarding Bad Behavior."
- ⁶² "Obstacles to Female Leadership."
- ⁶³ Jacques and Taylor, "Myths and Realities of Female-Perpetrated Terrorism."
- ⁶⁴ Pape, *Dying to Win*; and "Women and Terrorist Radicalization."
- ⁶⁵ Krueger and Malečková, "Education, Poverty and Terrorism."
- ⁶⁶ "Factors Contributing to School Dropout among the Girls: A Review Of Literature"; and Noori, "Issues Causing Girls' Dropout from Schools in Afghanistan";
- ⁶⁷ See note 66 above.
- ⁶⁸ Noori, "Issues Causing Girls' Dropout from Schools in Afghanistan."

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- ⁶⁹ “Women and Terrorist Radicalization”; and Jacques and Taylor, “Myths and Realities of Female-Perpetrated Terrorism.”
- ⁷⁰ Broadbent, *Women’s Employment in Japan*.
- ⁷¹ Weichselbaumer and Winter-Ebmer, “A Meta-Analysis of the International Gender Wage Gap.”
- ⁷² Ndung’u et al., “Violent Extremism in Kenya,” 32.
- ⁷³ See note 72 above.
- ⁷⁴ Piazza, “Do Democracy and Free Markets Protect Us From Terrorism?”
- ⁷⁵ Wade and Reiter, “Does Democracy Matter?”
- ⁷⁶ Pape, *Dying to Win*; Kydd and Walter, “The Strategies of Terrorism”; and Krueger, *What Makes a Terrorist?*
- ⁷⁷ Speckhard, “The Emergence of Female Suicide Terrorists”; Davis, “Evolution of the Global Jihad”; Ahmed, “The Growing Threat of Female Suicide Attacks in Western Countries”; Dalton and Asal, “Is It Ideology or Desperation”; Henshaw, “Where Women Rebel”; and Alakoc, “Femme Fatale.”
- ⁷⁸ Young and Findley, “Promise and Pitfalls of Terrorism Research,” 300.
- ⁷⁹ Anderson, *Imagined Communities*.
- ⁸⁰ Pettigrew and Tropp, “Allport’s Intergroup Contact Hypothesis: Its History and Influence,” 263.
- ⁸¹ O’Rourke, “What’s Special about Female Suicide Terrorism?”
- ⁸² Our primary focus is female suicide bombers that are part of violent non-state actors, including terrorist and insurgent organizations: this analysis excludes those that committed suicide outside the context of an organization.
- ⁸³ Table 1 demonstrates the data used in our models: it reflects descriptive statistics for the variables already transformed to measures of central tendency.
- ⁸⁴ Coppedge et al., “V-Dem [Country-Year/Country-Date] Dataset v7.1.”
- ⁸⁵ Jacques and Taylor, “Myths and Realities of Female-Perpetrated Terrorism.”
- ⁸⁶ “Global Educational Attainment 1970-2015.”
- ⁸⁷ Teorell et al., “The Quality of Government Standard Dataset, Version Jan18.”
- ⁸⁸ Young and Findley, “Promise and Pitfalls of Terrorism Research.”
- ⁸⁹ Wade and Reiter, “Does Democracy Matter?”
- ⁹⁰ Teorell et al., “The Quality of Government Standard Dataset, Version Jan18.”
- ⁹¹ Piazza, “Do Democracy and Free Markets Protect Us from Terrorism?”; and Piazza, “Poverty, Minority Economic Discrimination, and Domestic Terrorism.”
- ⁹² Piazza, “Poverty, Minority Economic Discrimination, and Domestic Terrorism.”
- ⁹³ The “othering” process we describe along ethnic lines is similar to one described by Juergensmeyer (2000) with regards to religious groups.
- ⁹⁴ Pape, *Dying to Win*.
- ⁹⁵ O’Rourke, “What’s Special about Female Suicide Terrorism?”

⁹⁶ Young and Findley, “Promise and Pitfalls of Terrorism Research.”

⁹⁷ Thomas, “Rewarding Bad Behavior.”

⁹⁸ See note 51 above. (Pape, *Dying to Win*; Krueger, *What Makes a Terrorist?*; and Jahanbani et al, *A Lethal Metamorphosis*.)

⁹⁹ For the sake of brevity, we only listed support or the lack thereof for models that were statistically significant. Those that are not statistically significant also indicate a lack of support for the hypotheses.

¹⁰⁰ Thomas and Bond, “Women’s Participation in Violent Political Organizations”; and Henshaw, “Why Women Rebel.”

¹⁰¹ See note 47 above. (Dalton and Asal 2011; “Women and Terrorist Radicalization” 2012; Jacques and Taylor 2013)

¹⁰² Because of our smaller sample, we use the 0.1 as the lowest level of significance. For the utility of this level of significance in small samples, see Fisher (1950) and Biau, Jolles, and Porcher (2010).

¹⁰³ See note 47 above. (Dalton and Asal 2011; “Women and Terrorist Radicalization” 2012; Jacques and Taylor 2013).

¹⁰⁴ We thank one of our reviewers for this salient point regarding the broader patriarchal context of female participation in suicide terrorism.