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Introduction

Although traditional group-based terrorism is still highly active, lone-actor terrorism is gaining more ground.¹ In Western countries, this growing threat is even more tangible as the number of lone-actor terrorism attacks has multiplied over the last 15 years, and experts believe it will become the most prevalent form of terrorism in the future.² According to the European Counter Terrorism Center, lone-actor terrorism is the most favored type of terrorism by both the Islamic State of Iraq and Levant (ISIS) and Al Qaeda, and it was a major threat for European countries in 2017.³

Moreover, lone-actor terrorism is hard to combat.⁴ Usually, LATs have no obvious contacts with terrorist groups or with elements monitored by security and intelligence organizations. As a result, LATs can operate without detection before the attack.⁵ Therefore, any explicit information and knowledge about the characteristics of LATs has high value for counterterrorism.⁶

Similar to other criminals, lone-actor terrorists (LATs) and their characteristics change over time; as a result, the available knowledge about them is insufficient.⁷ Nevertheless, studies have attempted to elucidate different characteristics of LATs.⁸ Scholars have tried to aid policy makers, law enforcement, and the security and intelligence apparatus to prevent and counter LATs by using profiling since they believe that LATs may have similar characteristics.⁹

Profiling previous LATs can provide valuable knowledge about which individuals may become LATs and which persons are prone to take violent actions.¹⁰ This knowledge can also explain better why some individuals are susceptible to radicalization.¹¹ Therefore, based on the Global Terrorism Database (GTD), the objective of this current study is to evaluate LATs through criminal profiling. Since terrorist are also criminals, we believe that criminological theories and methods are applicable to the case of terrorism and terrorists.¹² The study will thus evaluate LATs' demographics (age and gender), social (previous criminal record, type of criminal record, and migration status), psychological (mental and psychological status, social status, ideology, radicalization, and typology of LAT), and operational characteristics (leakage of information, modus operandi, and whether they are known by security and intelligence agencies).

The next section defines important concepts used in this article. The third section, Profiling in Terrorism, gives a brief overview of the notion of profiling and presents the studied characteristics in this article. The fourth section, Data Collection, outlines the methods of the study, followed by the results section. The last two sections discuss the results and offer a conclusion as well as future implications.

Concept Definition

Terrorism

Although there is no consensus on the definition of terrorism, three factors are common in most definitions. To deem an action as “terrorism,” the action must

1. be illegal according to the laws of the host country,
2. have political motives, and
3. be intended to intimidate the public.¹³

Regarding political motives, the action must aim at attaining political, social, or religious objectives. Based on these factors, we define terrorism as a violent action or threat against random or selective individuals conducted for political motives to influence the public through the creation of fear.¹⁴

Lone-Actor Terrorism

An LAT is often called a lone-wolf terrorist. In the wild animal world, a lone wolf is a wolf that prefers to leave the pack and hunt alone. Thus, a lone-wolf terrorist—or, more correctly, a lone-actor terrorist—is an individual or a small group of terrorists who operate alone.¹⁵ Hence, the LAT or LATs plan, organize, and carry out the actions without any physical, financial, or other support from a terrorist group or network, even though those groups may have inspired the LAT.¹⁶ The Countering Lone-Actor Terrorism project (CLAT) defines lone-actor terrorism as follows:

Threat or use of violence by a single perpetrator (or small cell), not acting out of purely personal or material reasons, with the aim of influencing a wider audience, and who acts without any direct support in the planning, preparation, and execution of the attack, and whose decision to act is not directed by any group or other individuals although possibly inspired by others.¹⁷

Profiling

Although no single definition for criminal profiling exists and scholars have given several definitions for this concept, the objective in all definitions is similar: To provide useful information to assist law enforcement in identifying and locating offenders and detecting potential offenders.¹⁸ Therefore, profiling is a process of drawing a possible image of a likely offender. The foundation of profiling is the belief that offenders committing similar crimes also share similar characteristics.¹⁹ Behavioral consistency theory is the basis of this view, and it states that primary traits are stable and general in a way that they lead an individual to behave in a specific way across different situations. Further, according to the homology assumption, offenders

of a specific crime share similar background characteristics.²⁰ Thus, Richard Kocsis defines criminal profiling as follows:

The process of identifying personality traits, behavioral tendencies, geographic locations, and demographic or biological descriptors of an offender based on characteristics of the crime.²¹

Profiling in Terrorism Studies

In terrorism studies, profiling is a new and understudied discipline that has been practiced mainly since the 9/11 terrorist attacks.²² Terrorism scholars argue that since terrorist groups and networks target specific individuals for radicalization, these individuals should have common characteristics.²³ Accordingly, by identifying these characteristics, government agencies may be able to detect individuals at risk for radicalization.

On the other hand, some scholars believe that profiling terrorists is impossible because their motivations and aims vary.²⁴ However, in recent years, profiling terrorists has been widely practiced in both the academic field and counterterrorism, and the Council of the European Union recommends its members to work together on this specific task in order to assist law enforcement to identify and locate probable terrorists. According to the recommendation, terrorist profiling is about collecting a set of physical, psychological, and behavioral characteristics that are common in individuals who engage in terrorist activities, and it can aid predictive practices as well.²⁵

Profiling Lone-Actor Terrorists

Unlike different and sometimes opposing views about terrorism profiling in general, when it comes to lone-actor terrorists, there is an agreement that LATs may have common specific characteristics.²⁶ Scholars have argued that this is because of fundamental differences between traditional group-based terrorism and lone-actor terrorism. The main difference between the two types of terrorism is probably that LATs share relatively similar characteristics concerning their personal and social characteristics, ideology, modus operandi, and typology.²⁷

Demographics

The age and gender of terrorists are the main personal characteristics that terrorism scholars study, just like criminologists examining other types of violent crimes. In criminology, offence varies with age, and young males have a stronger tendency toward high-risk violent activities than females.²⁸ Studies in terrorism show that most terrorist group members are males who join the groups when they are young.²⁹ However, in relation to LATs, previous studies indicate that LATs tend to be older than traditional group-based terrorists are. One study from the CLAT project on 120 LATs between 2000 and 2014 in Europe

showed that all the included LATs were male with an average age of close to 30.³⁰ Another study on 119 LATs between 1990 and 2013 in the United States and Europe supports these findings, stating that 98 percent of the identified LATs were male and that the average age was 33.³¹ Moreover, some studies state that the age of an LAT depends on his/her ideology and can thus be different.³² Therefore, based on previous studies, LATs are likely to be male and older than traditional group-based terrorists are.

Social characteristics

Having previous criminal record is one of the similarities between both terrorists and violent criminals.³³ Concerning LATs though, the frequency of this factor is not high. While, for example, a study by the CLAT project found that only 33 percent of the sample of LATs (n=120) had a previous criminal record, another study found that this factor varies based on the ideology of the offender and is less viable among Islamist LATs.³⁴ Previous criminal record is thus a non-specific factor in LATs.

Psychological Characteristics

Mental and psychological status is another personal characteristic often discussed regarding LATs.³⁵ Considering a terrorist as an individual with mental disorders is common among both the mass media and the public.³⁶ This is especially the case for LATs since they are often socially isolated individuals.³⁷ Gruenewald and his colleagues found that 40 percent of 70 right wing LATs in the United States between 1990 and 2008 had mental disorders.³⁸ Spaaij noted that mental illness is an important factor and that the social isolation of LATs is, in fact, the result of their mental disorders.³⁹ On the other hand, a study of 119 LATs showed that only 32 percent of them had mental disorders.⁴⁰ A study from the CLAT project also states that only 35 percent of the LATs had mental disorders, and Perry and his colleagues argued that mental disorder varies among LATs with different ideologies.⁴¹ Although there is no consensus regarding frequency and the role of mental disorders among LATs, the majority of studies state that mental disorders among LATs are relatively more common in comparison to traditional group-based terrorists.

Regarding social status, studies claim that LATs are more likely to be socially isolated.⁴² They tend to be single and live alone. They do not have friends and might have problems with their parents as well.⁴³ For instance, Gill and his colleagues found that just more than half (52 percent) of their identified LATs (n=120) were socially isolated.⁴⁴ On the other hand, some studies show that being socially isolated is not common among LATs. The study by the CLAT project and the study by Perry et al. showed that only 29 percent and 30 percent of the LATs, respectively, had been socially isolated.⁴⁵ Consequently, despite opposite views regarding this variable, it is clear that social isolation

may be more common among LATs in comparison to traditional group-based terrorists.

Ideology is an important factor when discussing LATs.⁴⁶ In most lone-actor terrorism studies, ideology has been the most powerful provocative factor for the actors.⁴⁷ For instance, both the study by Gill et al. and the study by the CLAT project showed that ideology plays a key role, and more than 70 percent of the LATs were ideologically motivated.⁴⁸ Consequently, some scholars categorize LATs by their ideology.⁴⁹

In discussing the role of ideology in lone-actor terrorism, radicalization is an important concept. It is the process of fundamental changes in an individual's beliefs, where the individual gradually adopts extreme views about political, social, or religious matters and tends to justify the use of extreme violence as a solution.⁵⁰ For LATs, who in most cases do not have any direct contact with a radical group or individual, radicalization usually happens via the Internet, especially through social media.⁵¹ By providing a safe and secure platform on which to connect with other like-minded individuals, the Internet increases the likelihood of self-radicalization for LATs.⁵² The aforementioned study by the CLAT project showed that more than half (54 percent) of the LATs in its sample (n=120) used the Internet to obtain training knowledge.⁵³ As a result, the Internet and social media are an important way of radicalizing LATs.

Regarding the typology of LATs, Pantucci proposed a typology for characterizing Islamist LATs.⁵⁴ It divided them into three different types: Loner, lone wolf, and lone-wolf pack. Although this typology foremost applies to Islamist LATs, it can also be used in discussing all types of LATs, which is why it is used in this study. Loner, in Pantucci's typology, refers to individuals with an extreme ideology who carry out their attacks without having any direct or real contact with a radicalized person or an extremist group. This type of LAT usually becomes radical via the Internet and social media. The lone wolf is an individual who has had some contact with a terrorist group or extremist network but planned, organized, and carried out his/her actions entirely alone. The lone-wolf pack has the same characteristics as loners except that they comprise more than one individual and, in fact, are a small cell. Pantucci also proposed a fourth typology, lone attackers. We do not use this last typology in this study since lone attackers are members of a terrorist group and receive orders to undertake a terrorist attack alone. Therefore, they do not fit the definition of lone-actor terrorists. Generally, LATs tend to be loners.⁵⁵ In Teich's study, which included 73 Islamist LATs between 1990 and 2013 in the United States and Western Europe, 55 percent were loners, 24 percent were lone wolves, and 21 percent were in lone-wolf packs.⁵⁶

Operational Characteristics

Scholars argue that investigating the *modus operandi* of LATs provides useful knowledge for counterterrorism activities.⁵⁷ Accordingly, weapon, target, victim, frequency of attacks, and number of attackers are of importance. Previous studies show that LATs tend to use firearms more than any other weapon in their attacks.⁵⁸ Between 1968 and 2014, firearms were the most common weapon used by LATs in the United States and Europe and caused the most harm to civilians.⁵⁹

Regarding selecting targets and victims, LATs typically target civilians. According to a study from the CLAT project, LATs in Europe between 2000 and 2014 killed 195 people and injured 449, and most of them were civilians.⁶⁰ In other studies, civilians were also the most common target of LATs and the second most common were government employees, such as the police.⁶¹

The last factor examined in previous studies is leakage of information, which refers to the intentional or unintentional leaking of information because of the behavior or action of the LAT, thus revealing his/her violent intentions. LATs typically have poor operational security and, generally, tend to leak information about their intentions.⁶² According to a study from the CLAT project, 44 percent of its sample (n=120), on some level, informed others about their tendencies for violent activities and radical actions.⁶³ In Gill et al.'s sample (n=119), 64 percent of the LATs revealed their tendencies to engage in terrorist activities to their families and friends.⁶⁴

Although there are many significant common characteristics and traits among lone-actor terrorists, most of the studies above concluded that it is not possible to present one single comprehensive profile of an LAT.⁶⁵ Despite this diversity, there are some distinguishable differences between subgroups of lone-actors. Moreover, making the effort to characterize lone actors will uncover beneficial and useful facts for combating terrorism.⁶⁶

Data Collection

In this cross-sectional study, we collected data from secondary open sources. Since accessing primary sources in terrorism studies is difficult, using secondary sources is common.⁶⁷ We collected the main data from the GTD, created by the National Consortium for the Study of Terrorism and Response to Terrorism and which contains information on all terrorist incidents around the world. The information available includes the date of the attack, the location, the number of fatalities and injuries, the type of attack, the weapon used, the victim or target, and the ideology of the terrorist. The GTD collects its data from open sources such as media archives, existing data sets, and legal documents.⁶⁸

Unfortunately, some data were missing at the GTD. These data included demographic information about the terrorist—such as age, migration status, leakage of information, previous criminal record, radicalization process, social status, mental health status, and whether the LAT was known or unknown by intelligence agencies. We manually gathered these variables from secondary open sources, specifically media and news websites based on a nonsystematic search.

Sample and Analysis

Previous researchers have already studied LATs between 1968 and 2014 in the United States and Europe.⁶⁹ Therefore, the focus of this present study is on lone-actor terrorism from the beginning of 2015 until the end of 2016. In collecting data, we searched the GTD's dataset for terrorist attacks categorized as LAT attacks in 23 Western European countries (Appendix A). We selected these countries because most of the LAT attacks between 2000 and 2014 in Europe took place in Western European countries.⁷⁰ After searching basic information about the attacks and their respective LATs on the GTD, we searched the name of the LAT or the name of the incident to find other variables and to validate the findings; we searched at least three different open-source media for each case.

We analyzed the GTD database and other secondary open-source media to identify the required variables based on a codebook (Appendix B). We then analyzed all the gathered variables based on the same codebook, which we developed by reviewing previous studies. Appendix B defines all the variables and their sub-categories.

Results

Attack Characteristics

We identified 37 lone-actor terrorist attacks (36 actual attacks and one plot). Most of the attacks were carried out in France (n=14; 37 percent), followed by Germany (n=10; 27 percent) and the United Kingdom (n=5; 14 percent). Of the 37 attacks, the majority (n=22; 60.5 percent) were armed assaults (Table 1).

Table 1. Characteristics of the attacks

Attack characteristics		Prevalence	Percent
Attack/plot	N	37	100
Country of attack	France	14	37
	Germany	10	27
	United Kingdom	5	14
	Denmark	3	7.5
	Sweden	2	5.5
	Belgium	1	3
	Italy	1	3
	Spain	1	3

Type of attack	Armed assault	22	60.5
	Bombing	3	7.5
	Unarmed assault	3	7.5
	Assassination	3	7.5
	Hostage taking	3	7.5
	Facility	2	5.5
	Kidnapping	1	3
	Hijacking	1	3

Source: Global Terrorism Database.

LAT Characteristics

Of the 36 identified LATs, 35 were male. The age of the LATs varied between 12 and 52, with the median age being 24. Most of the LATs (n=16; 45 percent) were between 21 and 30 years old. Also, most of the LATs (n=20; 56 percent) had no previous criminal record. Only 15 LATs (41.5 percent) had committed previous act of crime. Violent crimes were the most common type of previous criminal act (n=8; 22.5 percent).

Regarding mental health status, information was available for 33 LATs. Most of them (n=24; 67 percent) had no prior or current mental health issues, while a quarter of the LATs (n=9; 25 percent) had a confirmed history of mental health disorders before or at the time of the attack. Concerning social status, no information was available for seven LATs. Of the remaining 29 LATs, 13 (36 percent) were socially isolated at the time of the attack. Further, seven of the 13 LATs with social isolation also had mental health disorders.

Regarding migration status, only six LATs (16 percent) were natives of the country they attacked. Eleven LATs (31 percent) were second-generation immigrants. Nine (25 percent) were first-generation immigrants, seven (19 percent) were 1.5-generation immigrants in the place of the attack, and only two were refugees (Table 2).

Table 2. Characteristics of Lone-Actor Terrorists

Offender characteristics		Prevalence	Percent
Lone-Actor terrorists	N	36	100
Age	11-20	10	28
	21-30	16	45
	31-40	8	22
	41-50	1	2.5
	51-60	1	2.5
Gender	Male	35	97.5
	Female	1	2.5
Previous criminal record	Positive	15	41.5
	Negative	20	56
	Unknown	1	2.5
Type of criminal record	Armed robbery	3	8
	Drug using/trafficking	6	17
	Violence	8	22.5
	Theft	5	14
	Gang related	1	2.5
	Radical activity	1	2.5
Mental health	Having mental disorder	9	25
	No mental disorder	24	67
	Unknown	3	8
Social status	Isolated	13	36
	Not isolated	16	45
	Unknown	7	19
Social isolation with mental disorder	Positive	7	20
	Negative	6	17
Migration status	Second generation immigrant	11	31
	First generation immigrant	9	25
	1.5-generation immigrant	7	19
	Native	6	16
	Refuge	2	5.5
	Unknown	1	2.5
Known by security and intelligence agencies		9	25
	Under monitoring	3	8
	Under surveillance	1	2.5

Source: Authors gathered the information from open sources.

Radicalization and Ideology

Most of the LATs (n=27; 75 percent) had radical Islamic views. The second most common ideology was a right wing ideology, which included four LATs (11 percent). The radicalization process of ten LATs

(28 percent) is unknown. Fourteen LATs (40 percent) were radicalized via social media and the Internet. Four LATs (12 percent) were radicalized in prison, three (9 percent) through a personal network, two (5.5 percent) through community network, and two others were radicalized by contacting a terrorist group. Finally, 25 percent of all LATs were known by the intelligence and security agencies at the time of their attack (Table 3).

Table 3. Ideology and Radicalization of Lone-Actor Terrorists

Ideology and radicalization characteristics		Prevalence	Percent
Lone-Actor terrorists	N	36	100
Radicalization	Internet	14	40
	Prison	4	12
	Personal network	3	8
	Community Network	2	5
	Actual group	1	2
	Non radicalized	1	2
	Unknown	10	28
Ideology	Right wing	4	11
	Anti-Muslim	2	5.5
	Anti-Semitic	1	3
	Unknown	2	5.5
	Islamist	27	75

Source: Global Terrorism Database and information gathered by the authors from open sources.

Modus Operandi and Typology

A knife was the most common weapon used by the LATs (n=16; 44 percent), and only a quarter of them (n=9; 25 percent) used firearms. Regarding fatalities, overall, 128 people died because of these attacks, and 571 others were injured. Civilians were the target of 37 percent of the LATs. For 28 percent of the LATs, politicians, governmental places, and public servants were the targets, while the other 28 percent targeted religious figures and institutions (Table 4). Furthermore, the loner was the most common type of LATs in this study (n=15; 42 percent), then the lone wolf (n=12; 33.5 percent), and then the lone wolf pack (n=8; 22 percent) (Table 5).

Table 4. Modus Operandi of Lone-Actor Terrorists

Modus operandi characteristic		Prevalence	Percent
Lone-Actor terrorists	N	36	100
Type of weapon	Firearm	9	25
	Knife	16	44
	Vehicle	3	7
	Incendiary/Arson	4	11
	Explosive	5	13
Target/Victim	Civilian	13	37
	Government	10	28
	Religious figure/Institution	10	28
	Private business	3	8
	Education institution	2	6
	Unknown	1	2
Fatality	N	128	100
Injury	N	571	100
Leakage of Information	Unknown	16	45
	Positive	6	17
	Negative	14	38

Source: Global Terrorism Database and information gathered by the authors from open sources.

Table 5. Typology of lone-actor terrorists

Typology		Prevalence	Percent
Lone-Actor terrorists	N	36	100
Typology	Loner	15	42
	Lone wolf	12	33.5
	Lone-wolf pack	8	22
	Unknown	1	2.5

Source: Authors gathered the information from open sources.

LATs Based on Ideology

Regarding the relationship between attack characteristics and ideology, the majority of the attacks (n=28; 76 percent) were carried out as the result of Radical Islamic ideology. Right wing ideology, anti-Muslim ideology, and anti-Semitic ideology accounted for eleven percent, five and a half percent, and two percent of the attacks, respectively. Most of the Islamic ideology attacks were undertaken in France (n=12; 33 percent), followed by Germany (n=8; 22 percent) and the United Kingdom (n=3; 8 percent). Right wing LATs targeted Germany in two out of the four right wing attacks. The other two right wing attacks took place in Sweden and the United Kingdom.

Armed assault was the most common type of attack among Islamist LATs (n=16; 43 percent). Twenty-Eight percent of the Islamist LATs (n=10) targeted civilians in their attacks. The second most common

target of Islamist LATs (n=9; 25 percent) was religious figures and institutions, while the third was governmental institutions (n=6; 17 percent).

Of the 128 fatalities, Islamist LATs were responsible for 115 (90 percent) deaths, while right wing LATs were responsible for the remaining fatalities. Islamist LATs also injured the majority (n=531; 93 percent) of the people. Right wing LATs accounted for the remaining casualties.

Regarding leakage of information, all six LATs who leaked information about their attacks or their intentions were Islamists. A majority of the LATs in the most common age group (21–30) were Islamists (n=14; 39 percent). Islamist LATs were also the most common actors in the age group 10–20 (n=8; 22 percent). Moreover, the youngest LAT was an Islamist, while the oldest was right wing LATs. Regarding previous criminal record, 10 of 15 LATs who had previous criminal records were Islamists, while only one of the right wing LATs had a previous criminal record. The other two were anti-Muslim and anti-Semitic.

Furthermore, most LATs suffering from mental disorders were Islamists (n=5). Half of the right-wing LATs had mental disorders (n=2). Regarding social status, Islamist LATs were isolated to a higher degree (n=8). Moreover, three out of four right-wing actors were also socially isolated.

Of the eleven second-generation immigrant LATs, nine were Islamists. Additionally, Islamist LATs constituted the majority of the first-generation immigrants (seven out of nine). Most of the right-wing LATs were native (n=3), and both refugee LATs were Islamist. Islamist LATs also constituted the majority of the LATs known by intelligence and security agencies (eight out of nine).

The majority of LATs who were radicalized via social media and the Internet were Islamists (n=12), while the other two were right wing. The majority of the loner types of LATs were Islamists (n=9; 25 percent). Islamist LATs were also the majority in the lone-wolf type (n=10; 28 percent), and all of the eight lone-wolf-pack individuals were Islamists (22 percent). Regarding right wing LATs, the majority were loners (n=3).

Discussion

The purpose of this study was to evaluate whether there are common characteristics among LATs. Our findings show that LAT attacks are rapidly increasing and confirm other studies' statements that this type of terrorism is becoming more prevalent.⁷¹ While there were 198 LAT attacks and plots between 1968 and 2010 in Western Europe and the United States and 98 attacks and plots between 2000 and 2014 all around Europe, this study shows that during only two years, 2015 and

2016, LATs carried out 37 attacks in Western European countries alone.⁷² Why LAT attacks have increased is not clear. However, it might be attributable to massive propaganda by terrorist groups, encouraging their sympathizers to act alone since it is more difficult for law enforcement to detect them.⁷³ Moreover, unlike the results from the CLAT study showing that the United Kingdom has been the prime target for LATs, the results of this study show that France has recently become the prime target for LATs.⁷⁴

Characteristics of LATs

Regarding the personal characteristics of LATs, the findings show variations in comparison to previous results. The age of LATs has decreased during the past three years; while the average age of LATs was 29.7 in the CLAT study and 33 in the study by Gill et al., our study indicates the average age has declined to 24 years.⁷⁵ The age of the youngest and the oldest LAT has also decreased from 15 and 74 in the CLAT study to 12 and 52 in our study.⁷⁶ This indicates that the age of radicalization and engaging in violent political activities in Western Europe is decreasing. The large number of Islamist LATs included in this study and the fact that Islamist LATs tend to be younger may explain this finding.⁷⁷ The high use of the Internet and massive propaganda by terrorist groups can be another reason since they tend to affect young individuals active on the Internet.⁷⁸ Shehabat et al. have previously shown that social media is the primary space where communication between radicalized individuals takes place and where propaganda that inspires lone-wolf attacks circulates.⁷⁹

In contrast to previous studies, where previous criminal records are a non-specific factor, our study acknowledges the important role of this factor, at least in the past three years.⁸⁰ Our results show that criminals have a greater tendency to engage in political violence. However, the type of previous criminal record is still a non-specific factor. A report from GLOBSEC supports our finding, discussing both LATs and group based terrorism and indicating that individuals with a criminal record are more prone to engage in terrorist activities.⁸¹

However, unlike traditional group-based terrorists, criminal gang members are less likely to become LATs.⁸² Lone-actor terrorism is more about individuals acting for non-personal purposes, whereas engaging in terrorism for gang members is not a political or ideological decision but rather in line with their personal financial or social interests, such as engaging in drug or arms trafficking.⁸³

Unlike previous results, our study findings show that mental disorders are not common among LATs as only a quarter (25 percent) of LATs in this study suffered from a mental disorder.⁸⁴ Previous studies show that the frequency of mental disorders among LATs varies with respect to ideology. While the frequency of mental disorder among right wing LATs is high, it is low among Islamist LATs.⁸⁵ Accordingly, the low

percentage of mental disorders in our study is not surprising since most of the LATs in this study are Islamists.

Regarding social status, our results are in line with previous findings: This factor is more specific than mental health status.⁸⁶ From a criminological point of view, this supports Hirschi's social bond theory, which claims criminal activity is the result of lack of social bond with others (including family, friends, community, and social institutions such as school and employers).⁸⁷ Based on this theory, the lack of social ties—or what this study refers to as social isolation—can lead to criminogenic behaviors. However, unlike previous results, the combination of social isolation and mental disorders is not a specific factor in our study, as half of the socially isolated LATs had no mental ill health.⁸⁸

To our knowledge, no previous studies have considered migration status as a factor regarding LATs. Of the 36 LATs in this study, 24 were native, 1.5-generation, or second-generation immigrants in the target country. Mainstream narrative claims that frustration and anger in both 1.5 and second-generation immigrants in the host society may lead to their susceptibility to radicalization.⁸⁹ However, contrary to public opinion and the claim of mainstream media, this study's finding clearly shows that it is not immigrants who are responsible for LAT attacks; in fact, most of the LATs in this study were born and grew up in the target countries and took part in their educational system and values.

Another factor overlooked by previous studies is the level of information that the intelligence and security agencies had on the LAT before the attack. In counterterrorism, collecting and analyzing intelligence is vital, and monitoring suspicious individuals and activities is one of the best ways to collect data. Therefore, the ability of someone monitored by or known to authorities to undertake an attack represents a failure for the security agencies of that country. Although we could not acquire the number of individuals monitored during the specific time of this study in order to compare the results, it is still of interest that nine of the 37 LATs included in this study were able to continue with their attack despite being known and in some cases even monitored by security and intelligence agencies. This supports the belief that radicalization is a gradual and developmental process from the point of being radicalized to the point of taking action.⁹⁰ This time in between is highly useful for intelligence and security agencies to monitor, identify, and possibly arrest the individual.

Ideology and Radicalization

Regarding the radicalization process and the role of the Internet, this study supports previous literatures and results.⁹¹ The Internet and social media have become a haven for LATs to discuss and nurture radical views without detection by an intelligence agency.⁹² Indeed, ISIS used the concept of “e-jihad” to encourage their sympathizers and

followers to be active on social media, particularly the apps Telegram and Twitter.⁹³

Regarding ideology, our findings agree with previous results that radical Islamic views are the most common ideology expressed by LATs.⁹⁴ This may illuminate the effectiveness of the political circumstances and the propaganda of radical Islamic groups in converting individuals to LATs. Another reason may be that radical Islamic groups are more organized than those of radical right and left wing groups.

Modus Operandi and Typology

Regarding modus operandi, the present results show a significant change among LATs. While the use of a firearm has always been the most common modus operandi, this study shows that the knife has replaced firearm as the most common weapon in attacks.⁹⁵ Moreover, firearm is no longer the most lethal weapon. In the two attacks with the most fatalities (77 percent of the total) and injured (84 percent of the total), the weapon used was a vehicle. These results indicate the increasing possibility of conducting an LAT attack without any special or sophisticated weapon while simultaneously making it more difficult to prevent these kinds of attacks.

Another interesting result in our study has to do with the question of information leakage. Although this variable was unknown for 45 percent of the LATs, unlike previous studies, only a minority of the LATs (n=6) did in fact leak information about their attacks.⁹⁶ This shows that the previous opinion, claiming that LATs typically have poor operational security, has changed and is, at least in our study, not true.⁹⁷ While the CLAT study and the study by Gill et al. showed that 44 percent and 64 percent of the LATs, respectively, leaked information, our finding shows that only 17 percent of the LATs leaked information.⁹⁸

Regarding the typology of LATs, findings of this study are in line with previous results: Most of the LATs are loners, which also explains why most of the LATs in this study were radicalized via the Internet. However, the number of lone-wolf actors in the present study is interestingly higher in comparison to an earlier study, which shows that radical and terrorist groups are highly active in Western Europe in trying to radicalize more individuals.⁹⁹

LATs Based on Ideology

The absolute majority of the LATs were Islamists (n=27; 75 percent). Consequently, the numbers of other ideologies were low, and we cannot make effective conclusions about them. However, there are some interesting findings.

First, while Islamist LATs mainly targeted civilians, they were simultaneously the LAT group that mostly targeted governmental employees, predominately police officers. Although one right wing LAT did target a politician as a government employee, interestingly, none of the right wing actors targeted members of the police force. However, the number of Islamic LATs in this study being higher than right wing LATs may have affected this observation.

Second, the frequency of mental disorders among Islamist LATs relative to their numbers is low; only five (19 percent) Islamic LATs suffered from mental issues. This supports earlier findings about mental disorders being uncommon among Islamist LATs.¹⁰⁰

Third, regarding social status, our findings are also in line with previous results. While most of the right wing LATs were socially isolated, only 30 percent of the Islamist LATs were socially isolated, possibly due to the strong social bonds and ties that radical Islamists have with their families and their community.¹⁰¹

Fourth, regarding migration status, our results are in line with previous literatures discussing group-based terrorism.¹⁰² The absolute majority of Islamist LATs was second-generation immigrants or at least grew up in the targeted country as 1.5-generation immigrants. This is perhaps one the major challenges of the contemporary western world; How to stop homegrown radicalization?

Fifth, only nine LATs were familiar to the security agencies. This number, however, is not enough for a strong indication. Interestingly, 90 percent of them (eight out of nine) were Islamist. This may indicate that Islamist LATs are more likely to engage in radical activities than other known radical individuals or groups.

Limitations

Since accessing primary data in terrorism research is problematic, we had to rely on secondary data. This is a limitation because it is less reliable than primary data.¹⁰³ However, since options other than secondary sources are relatively limited in terrorism studies, using secondary sources is common; most of the research and articles on terrorism have relied on secondary sources.¹⁰⁴ While most criminologists use official data, victimization data, or self-reported data for their quantitative studies, researchers discussing terrorism cannot operate in the same way since intelligence and security agencies cannot by law to share their data and information. Moreover, focusing on the victim and victimization data is difficult due to the nature of the criminal act. For obvious reasons, self-reported data on terrorists are not possible to gather. In using secondary open sources, there are two main problems: The question of the accuracy of the information and the question of neutrality and the level of bias. To diminish the risk of these two pitfalls, we have used different open sources to check the correctness of the information.

The small sample used in this study is another limitation. Consequently, larger generalizations should be made with caution. This is especially the case since the sample includes only nine non-Islamist LATs.

Conclusion

We evaluated whether there are common characteristics among LATs conducting terrorist attacks in Western European countries during 2015–2016. The findings of this study confirm that lone-actor terrorism is a growing threat for Western European countries, and although there is no single comprehensive profile for LATs, there are common characteristics among them. Contrary to views about the inefficiency of profiling in terrorism, our results illustrate that profiling as a method can lead us to valuable knowledge about and a better understanding of the phenomenon of lone-actor terrorism; it can also allow us to plan more effective counterterrorism strategies and policies. However, profiling is not a crime solver by itself, particularly in discussing terrorism. Researchers use profiling in terrorism partly to help law enforcement to focus on a particular set of offenders and partly to help law enforcement with better and more effective risk management. As a result, by analyzing noteworthy information on previous LATs, profiling can provide public institutions, policy makers, and even security and intelligence organizations with substantial knowledge on the possible characteristics and traits of lone-actor terrorists.

Future studies should focus on criminal profiling in terrorism studies. This warrants a closer collaboration between the disciplines of criminology and terrorism studies and more studies on profiling in the area of terrorism. Since different circumstances affect terrorists, studies should also focus on the modus operandi in relation to different characteristics of the terrorist.

Appendix A

List of Western European countries included in the study: Andorra, Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Gibraltar, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, and Vatican City.

Appendix B

Codebook of Variables

Place of attack: The country in which the attack took place.

Type of attack:

- 1) Assassination: Targeting one or several specific individuals as the aim of the attack.
- 2) Armed assault: An attack with the aim of harming human beings by using a weapon including firearms, cold weapon, or any other kind of hand weapon.
- 3) Bombing: An attack where explosive materials are used.
- 4) Hijacking: An action to take control of a vehicle.
- 5) Hostage taking: An action to take one or several individuals hostage to use them to achieve a specific purpose.
- 6) Kidnapping: An action to take one or several individuals hostage to use them to achieve a specific purpose.
- 7) Facility: Any form of attack against a non-human target, such as buildings.
- 8) Unarmed assault: An attack with the aim of harming human beings without using common weapons.

Age: The age of the LAT at the time of the attack.

Gender: The gender of the LAT (male or female).

Previous criminal record: Whether the LAT has been convicted of a crime, thus having a criminal record.

Type of previous criminal record: The type of crime that the LAT has been convicted of—including armed robbery, drug use, drug trafficking, violence, theft, gang-related activities, and radical activities.

Social status: The social status of the LAT relating to social isolation.

Migration status:

- 1) First-generation immigrant: The LAT is foreign-born and immigrated to the target country after his/her 18th birthday.
- 2) Second-generation immigrant: The LAT was born in the target country from first-generation immigrant parents.

- 3) 1.5-generation immigrant: The LAT was foreign born but immigrated to the target country before early teens.
- 4) Native: The LAT was born in the target country from parents who also were born in that country.
- 5) Refugee: Social, religious, political, or racial problems have forced the LAT to leave his/her native country. In the current study, a refugee also refers to an LAT who was an asylum seeker in the target country.
- 6) Unknown: The migration status of the LAT is unknown, or there is no available information about it.

Known by intelligence agencies: Whether the LAT was known to the intelligence agency of the country in which the attack took place. We divided this variable into two classifications that are more specific:

- 1) Under monitoring: The intelligence agencies were generally monitoring the LAT.
- 2) Under surveillance: In addition to being under monitoring, all the activities of the LAT (such as his/her social media accounts and phone conversations) were specifically under surveillance.

Radicalization process: This variable shows the way in which the LAT was radicalized. We divided it into six classifications:

- 1) Internet: Radicalization through the Internet.
- 2) Prison: The LAT was radicalized while in prison.
- 3) Personal network: The LAT was radicalized through his/her personal network.
- 4) Community network: The LAT was radicalized through being in a specific community. (The difference between personal network and community network is as follows: In the former, the LAT was radicalized through his personal contacts with specific individuals he has learned to know. In a community network, the LAT was radicalized because of being in a community, and he/she would probably never have been radicalized if he/she were not a member of that community.
- 5) Contact with a terrorist group: The LAT was radicalized by having direct physical contact with a terrorist group.
- 6) Unknown: The radicalization process of the LAT is unknown.

Ideology: The ideological motivation of the LAT to carry out the attack. We divided this variable into five classifications:

- 1) Right wing: The LAT has a right wing ideology—including anti-immigrant, neo-Nazi, and xenophobic views.
- 2) Anti-Muslim: The LAT has specific anti-Muslim views.
- 3) Anti-Semitic: The LAT has specific anti-Semitic and anti-Jewish views.
- 4) Islamist: The LAT has radical Islamic views.
- 5) Unknown: The ideological motivation of the LAT is unknown.

Type of weapon: Type of weapon used by the LAT in the attack. We divided this variable into five classifications:

- 1) Firearm.

- 2) Knife or a sharp instrument.
- 3) Vehicle.
- 4) Incendiary/Arson: Using materials or instruments to cause fire.
- 5) Explosive: Dynamite, bombs, grenades, and explosive ammunitions.

Target/Victim: This variable discusses which victim/target was the main target of the terrorist attack. We divided this variable into six classifications:

- 1) Civilian: The main targets are common citizens targeted randomly.
- 2) Government: The main targets are governmental institutions and organizations as well as public servants—including police officers, soldiers, politicians, and others targeted because of their governmental profession.
- 3) Religious figure/institution: The main targets are religious leaders—such as imams, priests, or rabbis. This classification also includes attacks on religious institutions—such as mosques, churches, or synagogues.
- 4) Private business: The main targets are individuals, places, institutions, or organizations targeted because of their financial or commercial activities. They may be stores, restaurants, bars, or gas stations.
- 5) Educational institutions: The main targets are schools, universities, colleges, or any other educational institution or their staff.
- 6) Unknown: Not clear why the LATs chose the specific target.

Fatality: The number of individuals killed in the attack or because of it. If killed, the LAT is not included in the count.

Injury: The number of individuals injured because of the attack or because of it. If injured, the LAT is not included in the count.

Leakage of information: Refers to the number of LATs who, for any reason, leaked information about their coming attack. In this variable, the term positive means that the LAT leaked information, negative means that the LAT did not leak any information and unknown means there was no available information about this variable in the specific case.

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