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Comparative Public Attitudes about Drone Strikes: Survey Experiments in Italy, Poland, and Germany

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Research on public attitudes about the use and efficacy of drone strikes primarily focuses on the United States. While there is a burgeoning second generation of public opinion research on drone strikes and drone warfare, in general, our understanding of cross-national public attitudes remains limited, particularly if non-US respondents behave and/or think differently. To address this, we extend Krep's (2014) and Walsh and Schulzke's (2018) research and conduct four surveys in three countries (Italy, Poland, and Germany) with 5,485 respondents to investigate how individuals outside the United States interpret ethical, moral, and casualty aversion framing in relation to support for drone strikes. Our results show that in all three countries, like the United States, respondents prefer drone strikes to traditional military operations but that support for drone strikes decreases when prompted with ethical and moral framing. Additional information about casualty aversion and reducing the physical risk to servicemembers' lives does not significantly influence support for drone strikes compared to traditional military operations.

Las investigaciones en materia de las actitudes públicas con respecto al uso y la eficacia de los ataques con drones tienden a centrarse principalmente en Estados Unidos. Aunque existe una creciente segunda generación de investigaciones en materia de opinión pública con respecto a los ataques con drones y la guerra con drones, nuestra comprensión de las actitudes públicas transnacionales sigue, en general, siendo limitada, en particular si los encuestados no estadounidenses se comportan y/o piensan de manera diferente. Con el fin de abordar esto, ampliamos la investigación de Krep (2014) y de Walsh y Schulzke (2018), y realizamos cuatro encuestas en tres países (Italia, Polonia y Alemania) con 5 485 encuestados para investigar cómo las personas fuera de los EE. UU. interpretan el marco ético, moral y de aversión a las bajas en relación con el apoyo a los ataques con drones. Nuestros resultados demuestran que, en los tres países, al igual que en Estados Unidos, los encuestados prefieren los ataques con drones a las operaciones militares tradicionales, pero que el apoyo a los ataques con drones disminuye cuando estos se presentan con un marco ético y moral. La información adicional relativa a la aversión a las bajas y a la reducción del riesgo físico para la vida de los militares no influye significativamente en el apoyo a los ataques con drones en comparación con las operaciones militares tradicionales.

La recherche relative aux attitudes publiques quant à l'utilisation et l'efficacité des frappes aux drones se concentre en premier lieu sur les États-Unis. Bien que l'on assiste actuellement à la naissance d'une deuxième génération de recherche sur l'opinion publique à l'égard des frappes

de drone et du combat au drone, de façon générale, notre compréhension des attitudes publiques transnationales reste limitée, notamment si des participants non américains se comportent et/ou réfléchissent différemment. Pour y remédier, nous prolongeons la recherche de Krep (2014) et de Walsh et Schulzke (2018) en menant quatre expériences de sondage dans trois pays (Italie, Pologne et Allemagne) auprès de 5 485 participants pour examiner comment les non-Américains interprètent le cadrage éthique, moral et allergique aux victimes collatérales concernant le soutien aux frappes de drones. Nos résultats montrent que dans ces trois pays, comme aux États-Unis, les participants préfèrent les frappes de drones aux opérations militaires traditionnelles, mais que ce soutien diminue dès que l'on aborde leur cadrage éthique et moral. Des informations supplémentaires sur l'aversion aux victimes collatérales et la réduction des risques physiques pour la vie des officiers n'ont pas d'incidence significative sur le soutien aux frappes de drones par rapport aux opérations militaires traditionnelles.

Introduction

The proliferation of unmanned aerial vehicles (UAVs, here forward: drones), both surveillance and armed or weaponized, is well documented (Boyle 2015; Horowitz, Kreps, and Fuhrmann 2016; Ewers et al. 2017; Fuhrmann and Horowitz 2017; Walsh 2018). Schwartz, Fuhrmann, and Horowitz (2022, 5) provide a succinct table illustrating the proliferation. The United States (in 2001), Israel (in 2004), and the United Kingdom (in 2008) are the founding members of the “drone users club” (Paulussen and Dorsey 2015, 22), but by 2016, less than two decades later, fifteen more countries acquired armed drones, and more than half of these next-generation club members conducted drone strikes (Schwartz, Fuhrmann, and Horowitz 2022). By February 2022, over 100 countries and nonstate actors possessed drones (Marcus 2022). Increased drone production capabilities provide supply-side causes of the proliferation. For example, Iran, Turkey, and China manufacture and supply drones to other countries and nonstate actors to challenge hegemonic balancing, international relations and security status, and ethnic/racial structures (Lushenko 2024a). As a result, the reach and comparative safety of the use of force have exponentially grown. For example, France conducted a drone strike in Mali against Adnan Abu Walid al-Sahrawi, an ISIS–West Africa leader, and Turkey conducted drone operations against Haftar’s forces in Libya.

Yet, the majority of research on public attitudes about the use of drones and the efficacy of strikes is confined to the original operators—primarily the United States (Kreps 2014; Ceccoli and Bing 2015; Kreps and Wallace 2016; Schneider and Macdonald 2016; Walsh and Schulzke 2018; Bodderly and Klein 2021). The common focus on the United States leads to two important limitations for our understanding of public attitudes about drone strikes—the first is methodological, the second is theoretical. This article lays the foundation for addressing these limitations and extending and expanding our knowledge about public perceptions, attitudes, and

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preferences regarding the use of drone strikes. By doing so, we contribute to the burgeoning second generation of cross-national public opinion research on drone strikes and drone warfare (Silverman 2019; Dunn and Wheeler 2024; Lushenko 2024a,b; Lushenko and Raman 2024).

First, relevant research lacks external validity or generalizability. The series of surveys and analyses provide substantial internal validity (for the United States) because the results remain relatively stable across time, question wording variation, experimental treatments, and sample selection. But researchers have yet to explore the generalizability of the results. When public attitudes about the use of drones are studied in the non-US context, they primarily focus on their use for law enforcement, national governance, or use by civilians and the private sector (see Sabino et al. 2022).¹ This is a substantially different framing that does not allow comparison of attitudes about the use of drones.

Second, the common focus on the United States is limiting because it does not allow analysis or predictions of public perception about drones in culturally different nations, countries with different and diverse historical war fighting and victimization experiences, or in countries where the use of drone strikes has not yet been as extensive. And the psychological and patriotic trauma from the September 11 terrorist attacks in the United States and drone strikes, primarily seen (and in survey experiments discussed) as a counterterrorism tool or used against terrorist targets, may have a unique influence on Americans' perceptions and attitudes compared to other countries' populations.

These are vital missing pieces of the research puzzle and problematic limitations because of drone proliferation. Technological advancements—including payload capabilities and artificial intelligence-boosted, and sometimes enabled, target identification and decision-making processes, Ukraine's use of uncrewed underwater vehicles against Russian naval forces, and six North Atlantic Treaty Organization (NATO) members' recent security decision to deter border incursions or provocation by Russia by building a drone wall—make studying public perception and attitudes about drones in non-US countries increasingly important.

Investigating whether and how different publics perceive and evaluate the use of drone strikes also has important policy implications. Identifying and understanding public attitudes allows governments to incorporate constituents' preferences into cost and benefit or risk assessment of drone acquisition programs or conducting drone strikes. And because drones significantly reduce the costs of armed conflict, perhaps most importantly by reducing physical military casualties, the decision to use force, engage in coercive foreign policy, and perhaps update rules of engagement and defense and deterrence policies is rapidly evolving for many countries. It is therefore crucial for researchers to investigate public perceptions and attitudes outside the United States.

The importance of expanding survey research beyond the United States is underscored by new dynamics in the use of drone strikes in international affairs, foreign policy, and national security policy. For example, international reporting, discussion, and attention to the use of, potential effectiveness, and moral and ethical risks of using drones against enemy targets have increased because of the frequent use of drone strikes in the Russia–Ukraine war (Kunertova 2023). And many governments and diverse international publics watched with bated breath to see if Iran could overload Israel's Iron Dome defense system using a large drone fleet in April 2024. These real-world events may have raised awareness of drones' military capabilities, usefulness, widespread use, and individuals' perceptions of risk assessment, harm, and morality.

¹Three notable exceptions are Lushenko, Raman, and Kreps' (2022) and Lushenko and Raman's (2024) comparative studies of public opinion research on drone strikes and drone warfare and Fisk, Merolla, and Ramos's (2019) research on the influence of threat perception and emotions on individuals' support for drone strikes.

We build from and extend Kreps' (2014) and Walsh and Schulzke's (2018) seminal research on public perception and support for drone strikes to investigate public attitudes about drone strikes and how individuals outside the United States interpret ethical, moral, and casualty aversion framing related to drone strikes. This is an important gap in knowledge to address because the political and societal salience, and therefore public perception, could vary across countries with regard to their current and historical use of drones. Others' research wades into this gap and investigates public opinion and drone policy formulation and strategy in cross-national comparative contexts (Silverman 2019; Dunn and Wheeler 2024; Lushenko and Raman 2024) considering both top-down and bottom-up influences and mechanisms as well as value- and belief-based micro-foundations that can influence perception, attitudes, and policy preferences (Kertzer 2017).

In our approach, we use the surveys to examine the scope conditions of theories or hypotheses established by the previous research. In other words, we aim to investigate whether respondents' country-specific policy history and preferences and conflict experience and exposure could shape public perceptions and attitudes about the use of drone strikes. In this initial study, we limit our focus to Europe. We create a classification of countries based on their exposure to a direct or nondirect threat, use of force policy and practices, and alignment with or support of US counterterrorism/foreign policy regarding drone strikes. As a point of information, our survey experiments rely on respondents having a layman's understanding of drone strikes that experts would classify as armed and networked drones (Kreuzer 2016). We find evidence that these dynamics influence respondents' attitudes, which encourages theorizing and conceptualization, but we leave that to future projects and additional researchers.

Defining Drone Strikes and Warfare

Drone technology and weaponry encompass a vast and heterogeneous set of capabilities. We briefly describe the contentious academic debate about defining drone warfare (Calcara et al. 2022) before turning to the specifics of our study. Drones are used for surveillance, watch and kill operations (Welsh 2015), (self-)defensive, offensive, and force-multiplying roles (Rogers 2024). These variations are connected to tactical and strategic thinking, objectives, and decision-making (Horowitz, Kreps, and Fuhrmann 2016; Chapa 2022). Drones can be used for unilateral policy objectives and in multinational coalition operations (Brunstetter 2021) or for anticipatory and preemptive operations (Braun 2023). In short, drone strikes are increasingly creeping into operational planning, which risks an over-reliance on a tool that can accomplish tactical victories but has limited strategic impact and success (Cronin 2013; Pollack and Byman 2024). Variations along these dynamics influence public opinion (Lushenko and Raman 2024). These are substantively and significantly distinct conditions than we ask our survey participants about. By extending the question wording from Kreps' 2014 and Walsh and Schulzke's 2018 public opinion research on drone strikes, our vignettes frame drone strikes as unilateral retaliation for fictional terrorist operations against a respondent's country.

Public Perception and Drone Strikes

Attitudes surrounding the use of drone strikes are motivated by several factors. Some surveys find that drone strikes' lethal precision and reduced collateral damage outweigh the risks of proliferation (Kreps 2014; Amoroso and Tamburini 2018). An argued critical advantage to drones is the operators' invulnerability, which reduces military casualties (Walsh and Schulzke 2018, 31). The fear of losing lives—or *casualty aversion*—is a substantial factor in public support for any military operation (Gartner 2008; Walsh and Schulzke 2018), but drone strikes may not comply with

the international humanitarian law principles of *proportionality* (e.g., limitations to civilian and collateral damage) and *distinction* (e.g., targeting violence only against combatants) (Kreps 2014; Crawford 2015) and are seen by some as “killer robots” representing an unthinkable infringement of human dignity (Asaro 2012; Sauer and Schörnig 2012; Horowitz, Kreps, and Fuhrmann 2016).

Public perception in the United States tends to support the use of drone strikes (Kreps 2014; Ceccoli and Bing 2015; Kreps and Wallace 2016; Walsh and Schulzke 2018; Bodderly and Klein 2021). Casualty aversion is interpreted to play a significant role in the public's assessment because drone strikes are preferred to ground troop operations (Walsh and Schulzke 2018). Successful drone strikes can boost presidential approval, even during times of domestic economic turmoil (Bodderly and Klein 2021). Because the US public generally supports the use of drones, presidents are granted a consistent green light to kill enemy combatants from afar (Kreps 2014; Kreps and Wallace 2016; Walsh and Schulzke 2018).

But arguments about the ethical and legal dimensions of drone strikes do play a counterweight and dampening role on US public support. Informing individuals that drone strikes may violate international humanitarian law norms lowers support, but information about the military effectiveness or the limits and challenges to legality has no effect (Kreps 2014; Kreps and Wallace 2016).

Same Framing, New Countries

We change the public under study from the United States and develop a classification of different types of European countries according to their support of US foreign policy and counterterrorism drone strikes, their own use of force practices and policies, and their exposure or vulnerability to direct and indirect threats. We consider direct threats to be armed conflict or war in a bordering country that represents an immediate physical or national security threat. Whereas indirect threats are primarily spillover effects emanating from regional, or relatively nearby, conflicts such as migrant flows or terrorism activity (i.e., from/in North Africa). The set of parameters is not exclusive to one another, and countries can face (and often do face) direct and indirect threats. For our study, we establish two scope conditions, or assumptions. First, we consider direct threats to be existential threats to a country's survival or geopolitical border integrity. For example, a declaration of war against it or an invasion by a foreign country, such as Russia's annexation of Crimea. Threats that can rise to the level of significant national political dialogue, such as immigration, are considered indirect threats because they do not inherently threaten a country's physical or geopolitical existence. Second, a European country will only use drone strikes against a foreign threat or target outside their national border.

Others have developed country classifications as heuristics for analyzing interstate relations and policy decision-making. For example, Korolev (2019) explores varying degrees of interstate cooperation and hegemonic balancing, bandwagoning, and hedging decisions in the South China Sea region. Our sample is restricted to European countries where there is less variation in generalized cooperation with the United States, for example, about liberal democratic governance, but still heterogeneity in degrees of support for US foreign policy. Lushenko and Raman (2024) apply two dimensions—use and constraint—to create a 2×2 table classifying cross-national models of drone warfare and find US and French publics differ in their support by model type. While this heuristic is related to our survey experiment, our sample consists of countries not yet (at the time of the surveys) deploying drone strikes for offensive counterterrorism, and thus we gauge public support for the overall use of counterterrorism drone strikes rather than how the public evaluates or supports different models. Lushenko and Raman (2024) define constraint as uni-

lateral versus multilateral, which is not applicable in our survey because we specifically prime respondents with information that their government is conducting the drone strike (i.e., a unilateral strike).

In our classification we identify three country types. Type 1 faces an external *indirect* threat to national security and is generally supportive of US foreign policy and counterterrorism. Type 2 face an external *direct* threat to national security and are generally supportive of US foreign policy and counterterrorism. Type 3 are influential international actors but typically refrain from threatening the use of force or directly engaging militarily to accomplish objectives. These value-based classifications could apply universally, but for the purposes of this study, we focus on the European Union because of the widespread proliferation and use of surveillance drones by member states and typically close diplomatic and security cooperation and alignment with the United States.

We identified Italy as a type 1 country because it has previously supported US drone missions (albeit for surveillance and not targeted strikes), is generally supportive of US counterterrorism in the Middle East and North Africa (MENA), and national politicians and public debate identify the consistent and large flow of migrants, primarily from North Africa, as an (indirect) threat to national security. Poland was identified as a type 2 country because of its support of US foreign policy and counterterrorism, specifically in the War on Terror, and the direct national security threat stemming from the Russia–Ukraine war on its border. We identified Germany as a type 3 country because it is an important and influential international player, but since (and because of) World War II (WW II), it has not directly engaged militarily to accomplish foreign policy goals. Nonmilitarized engagement is enshrined in Germany’s 1949 Basic Law. Article 26 includes a clear prohibition on “aggressive war” and Article 25 recognizes the “primacy of international law” over federal laws (Dunn and Wheeler 2024, 46). We deployed surveys in Italy (two surveys performed, $N_1 = 1,678$, $N_2 = 1,585$), Poland ($N = 1,083$), and Germany ($N = 1,139$) because these three countries fit our values-based classification, and we could include drone support questions and manipulations to preexisting planned surveys.

Type 1 Country: Facing External Indirect Threat and Supportive of US Counterterrorism (Italy)

Italy is the second country in Europe, after the United Kingdom, to arm its drones, has a well-equipped drone base in Sicily, uses FALCO EVO drones for maritime surveillance, and is geographically proximate to global jihadist threats in MENA (Cvijc et al. 2019; Martiny 2020; Mazzeo 2020).² Starting in 2016, Italy officially allowed the United States to launch drones from the Italian air base in Sigonella (Sicily), giving it a pivotal role in US operations against ISIS in Libya (ECCHR 2024). Sigonella also became the main air base for the NATO Allied Ground Surveillance (AGS) program (Sprenger 2021). The government has justified its actions using the disclaimer that Italy will only support defense missions (Amnesty International 2018). Leading up to this decision, it appears that drones were a low political saliency topic for the Italian public and politicians. For example, *La Stampa* mentioned the word “drones” in only 44 out of 837 articles analyzed between 2001 and 2016 (IRIAD 2017, 131–2). The lack of media interest in drones likely influences the depth and breadth of political and public dialogue concerning the legality and ethics of drones and may give an unintentional free pass to the Italian

²In 2015, the US government and the Defense Security Cooperation Agency granted the request to arm six Reapers and six Predators of the Italian Air Force with Hellfire missiles and satellite-guided bombs. Twenty P2HH militarized drones have been commissioned to replace the obsolete Predators (Cvijc et al. 2019, 52). In June 2020, a fifth RQ-4D Phoenix drone was delivered to the Italian military for operations from Sigonella (Mazzeo 2020).

government and military to expand their drone program outside the judgmental public eye.

Yet, politicians do publicly discuss drones and often reference their benefits. For example, the former Minister of Defence, Mario Mauro, argued, “drones are useful to identify precarious migrant vessels, track boats, and carry out general maritime surveillance” (Cvijc et al. 2019, 52). And the public engages in the topic, as can be seen through Google Trend keyword searches that show the number of Google searches for “drones” varies across time and in reaction to specific events in both Italy and the United States. Early in the emergence of drone strikes as a use of force by the United States, drone-googling was similar in the two countries, but by the 2010s, divergence in public attention emerged with significantly less drone-googling in Italy. There was a tremendous Italian spike in late 2015 corresponding to the Italian military releasing drone surveillance footage of ISIS fighters in Iraq. Italians’ drone-googling quickly declined but remained higher than pre-2015 levels through May 2024.

So far Italy has abstained from deploying lethal drone strikes, opting for only surveillance and defense support missions (Martiny 2020). However, the combination of Italy’s expanding weaponized drone arsenal, its involvement with and support of US drone operations and missions, and Sigonella’s strategic geopolitical location and operational infrastructure suggest that the Italian approach toward lethal drones could quickly change.

For these reasons, Italy is a valid type 1 country for investigating public attitudes about drone strikes.

Type 2 Country: Facing External Direct Threat and Supportive of US Counterterrorism (Poland)

The use of UAVs has become gradually more attractive in Poland. Apart from reducing the risk of pilots losing their lives, their expected “lower unit” and “associated labor costs” make them interesting tools for democracies suffering defense budget limitations (Fuhrmann and Horowitz 2017, 405). For example, in 2012, Warsaw discussed replacing its 1984 fleet of Su-22 fighters with UAVs because of their perceived affordability and high capabilities (Fuhrmann and Horowitz 2017). And in 2015, in response to an International Centre for Counter-Terrorism questionnaire, a senior specialist in the Polish Ministry of Defence stated:

The subject of drones has recently gained more importance in the Polish Armed Forces (PAF) as one of the key elements of building our military might by enhancing our Joint Intelligence Surveillance and Reconnaissance (JISR) capability. This however, refers only to unarmed drones, which, as such, are going to be at the PAF’s disposal in near future [...] (Paulussen and Dorsey 2015, 38).

The annexation of Crimea in 2014 and the security concerns caused by the Russian invasion of Ukraine in February 2022 increased Warsaw’s urgency for arming its drones. During this time span, Poland acquired its first MQ-9 Reaper drone from the United States and ordered twenty-four new Bayraktar TB2 drones from Turkey (Reuters 2021). Former Polish Defence Minister Mariusz Błaszczak claimed that there could be no modern army without drones, and acquiring them is a fundamental step in the modernization of the Polish armed forces (Reuters 2021).

The war in Ukraine shows that drones’ role in the battlefield has grown rapidly and will continue to do so. The global military drone market is foreseen to grow from USD 11.7 billion in 2022 to USD 17.2 billion in 2028 (Warsaw Drones Summit 2022). Drone Valley in Poland will become a regional center for drone technology and innovation, extending beyond the simple concept of “drone” and researching advanced military equipment, image recognition, data integration, and advanced information processing software (Warsaw Drones Summit 2022).

For these reasons, Poland is a valid type 2 country for investigating public attitudes about drone strikes.

*Type 3 Country: Influential International Actor But Refrains from Militarized Actions
(Germany)*

Germany is a member of the “drone users club” because it produces drones domestically, leases drones from Israel, and imports drones from the United States (Paulussen and Dorsey 2015, 22). German military forces and intelligence services possess medium-altitude and long-endurance UAVs; however, these drones have only been deployed for reconnaissance purposes (Paulussen and Dorsey 2015). Weaponized drones have been a controversial and heated debate in Germany, due to the lack of clarity of how drones would be used (Paulussen and Dorsey 2015, 22–3) and because of the inextricable association between drone operations and US-targeted killings (Dunn and Wheeler 2024, 49). Ursula Von der Leyen, a former German Minister of Defence, claimed that:

The federal government categorically rejects extrajudicial killings which are contrary to international law...Therefore the deployment of drones by the Bundeswehr is only possible, when all rules of international and national law are respected, and only after the consent of the German Bundestag (Deutscher Bundestag 2014, 4054).

While the former Social-Democrats (SPD) leader, Norbert Walter-Borjans, argued that “the line between defending the lives of our soldiers and killing with a joystick is extremely thin,” soldiers described their frustration in being “only observers” during reconnaissance missions (Foulkes 2020). During hearings organized by the Christian Democrats (CDU), soldiers testified that without armed drones, they can only observe attacks on Bundeswehr camps and cannot defend their comrades, which has created significant distress, according to the German armed forces association (Werkhäuser 2020). The “better protection for soldiers” argument found widespread support in Parliament (Werkhäuser 2020).

German policymakers share a similar perception of the threat posed by terrorist groups as their French and British counterparts (Dunn and Wheeler 2024, 58), but German politicians highlight that using armed drones—even for “force protection” purposes—could place counterterrorism operations and deployments under unclear legal circumstances, potentially violating Article 25 of Germany’s Basic Law (Dunn and Wheeler 2024, 49). While there may be shifting political currents within the Bundestag regarding military drone acquisition and use, significant emphasis remains placed on the necessity for any future use of armed drones to strictly adhere to Germany’s Basic Law and international law (Dunn and Wheeler 2024, 49).

For these reasons, Germany is a valid type 2 country for investigating public attitudes about drone strikes.

Survey Design

To study public opinion of drone strikes, we administered four surveys with an embedded experiment. The experiment consists of five between-subject, randomly assigned conditions (control and four treatments), which are based on Krepes’ (2014) and Walsh and Schulzke’s (2018) survey experiments with some modifications.

The surveys had a broader character and included other modules to be used in other studies. Italy was observed twice: The first experiment was run in June 2022 and the second in October 2022 using Respondi/Bilendi and Dynata survey firms, respectively. The latter firm was employed to deploy the survey in Germany and Poland in May 2022. To prevent satisficing, the surveys included attention checks (see below for the exact wording) but not manipulation check questions. Due to the latter, our experimental conditions function as intention-to-treat because ex post we have no way of verifying whether the treatments were internalized. The

samples were quota-representative to reflect the population structure in terms of gender, age, place of residence, and, to the extent possible, education. While the survey quota matches well with the target population quota for both the German and Polish samples as well as for the second Italian sample, the first Italian sample is less well matched. Therefore, while interpreting the results, we stress that the results for the second Italian sample (Italy 2) shall generally be more externally valid.³

All participants were presented with information in a template that looks like a news article. The text copies Walsh and Schulzke's (2018) survey experiment, but we change the byline to country X's capital and replace references to the US military and the US intelligence agency with references to the country equivalent. The advantage of using hypothetical scenarios à la Walsh and Schulzke's (2018) is that respondents do not have too strong priors, which could be the case if they are exposed to more realistic information. All participants received the information below, in either Italian, Polish, or German:

Background: read by all subjects

Capital — Terrorists connected to al Qaeda have established bases and training camps in the country of Yemen in the Middle East. Political turmoil has prevented the government of Yemen from acting against the terrorists. Recently the Yemen branch of al Qaeda attempted to bomb a country X airliner and to mail bombs to country X. The name of country intelligence agency, the foreign intelligence service of country X, has identified the location of the al Qaeda bases in Yemen.

For the control group we added at the end of the background Walsh and Schulzke's (2018) paratrooper scenario:

[Control condition]

The country X government plans to strike the bases with country X paratroopers. These country X troops would attack the militants and their leaders located in the bases.

The treatments are based on Kreps' (2014) and Walsh and Schulzke's (2018). From the latter, we retrieved the scenario related to the use of drones and implemented it as our treatment 1. Our expectation is that all country types' publics will prefer the use of drones to paratroopers.

[Treatment 1: drone strike]

Country X plans to launch attacks on these bases with missiles fired from unmanned drone aircraft to kill al Qaeda leaders and militants.

Walsh and Schulzke (2018) interpret that support for drone strikes is higher than for paratroopers because of the public's casualty aversion. Their argument and findings are based on the US population's preferences and experiences with high-casualty wars, in particular the social upheaval caused by the Vietnam War and military draft. These historical and sociopolitical processes may not be relevant in all countries. While we still think casualty aversion can play a significant role in public perception and support of drone strikes compared to conventional military operations, it may not be as salient for individuals in other countries compared to Americans. Alternatively, since WW II, the surveyed countries have experienced far less military engagement and casualties than the United States, and therefore the risk or shock of military casualties may be higher than in the United States, meaning casualty aversion could be an even greater rationale for supporting drone strikes in non-US publics.

³The first Italian sample is particularly unbalanced in terms of age structure (oversampling young respondents) and regional representation.

We directly tested the impact of casualty aversion on support for drone strikes in treatment 2 by reminding respondents “that no *country X* military personnel would be placed at risk.” In other words, respondents in treatment 2 were given a casualty aversion booster. It is of note that in the original study by [Walsh and Schulzke \(2018\)](#), the main treatment included the casualty aversion reminder by default. We thus differ in that our approach is to test if this additional cue can increase the support for drone strikes.

[Treatment 2: drone strike + booster]

Country X plans to launch attacks on these bases with missiles fired from unmanned drone aircraft to kill al Qaeda leaders and militants. The use of unmanned drones means that no *country X* military personnel would be placed at risk.

The next two treatments include [Kreps’ \(2014\)](#) legal and ethical prompts, which we expect to make drones less popular and lower public support, like they did in the US survey. [Kreps \(2014\)](#) experimented with providing information to respondents about proportionality and distinction separately—two cornerstones of international humanitarian law—and found that both types of information lower support for drone strikes at nearly equal effects. To see if this important distinction, or lack thereof, between the type of legal and ethical reminder also influences our survey participants, we launched two additional treatments.

Respondents in treatment 3 received the proportionality prompt containing information that drone strikes can result in civilian casualties, i.e., collateral damage, (“Proportionality” treatment). Respondents in treatment 4 received the distinction prompt containing information that the targeted individual(s) may not be confirmed terrorists/combatants (“Distinction” treatment).

[Treatment 3: drone strike + proportionality reminder]

Country X plans to launch attacks on these bases with missiles fired from unmanned drone aircraft to kill al Qaeda leaders and militants. The use of unmanned drones means that no *country X* military personnel would be placed at risk. Drone strikes have often caused a number of civilian casualties, in addition to the intended targets.

[Treatment 4: drone strike + distinction reminder]

Country X plans to launch attacks on these bases with missiles fired from unmanned drone aircraft to kill al Qaeda leaders and militants. The use of unmanned drones means that no *country X* military personnel would be placed at risk. The targeted individuals appear to behave in similar ways as terrorists - for example, going to a meeting with community elders - but may not be confirmed terrorists.

Following all vignettes, respondents are asked to answer two questions using a 7-point Likert-scale:⁴

On a scale from 1 to 7, where 1 indicates that *Country X* should definitely not carry out the attack and 7 indicates that *Country X* definitely should carry out the attack, how would you rate this attack plan?

How likely do you think it is that this attack would be to result in the death of *country X* military personnel?

1. Extremely unlikely
2. Very unlikely
3. Somewhat unlikely

⁴The 7-point Likert scale response options mirror [Walsh and Schulzke \(2018\)](#) but differ from [Kreps \(2014\)](#). We therefore cannot make direct or matching comparisons to [Kreps \(2014\)](#) yet can still identify similar patterns that lend support to tested effects.

4. Neither likely nor unlikely
5. Somewhat likely
6. Very likely
7. Extremely likely

We asked several pretreatment questions, including age, gender, education, and region of residence, to monitor respondents' demographic distribution in the survey. The distributions are found in the online appendix (Tables A1 and A2). These characteristics were further used to compute raking survey weights to align our sample with each country's population demographics. In the online appendix (Table A3), we also document that the distributions of basic characteristics of respondents—age, gender, and education—across experimental conditions were balanced.

We included a pretreatment attention check question. If respondents failed to respond correctly, the survey terminated, and there was no reimbursement for participation. In two surveys launched in Italy, respondents were requested to move the slider to the position denoted on a 1–7 scale. In the Polish and German surveys, respondents were requested to give a predefined answer to the question, “To what extent they are interested in politics.” They were actively informed that we forced them to choose particular answers in an attempt to test their attention.

By design, we are not directly replicating [Kreps \(2014\)](#) or [Walsh and Schulzke \(2018\)](#); rather, we are extending their research to new settings and country contexts examining scope conditions of the initial findings. It is a preliminary investigation of whether different publics resemble US public perceptions and attitudes about drone strikes or if the United States may be a unique case. Since it is not a direct replication and the modelling techniques vary between and across [Kreps \(2014\)](#), [Walsh and Schulzke \(2018\)](#), and our study, we abstain from a direct comparison of coefficients. We encourage more research in this vein, as this would enable a meta-analytical synthesis of the effect sizes across various contexts. Our initial analysis points to similarities and variations between publics and provides cross-national robustness to some of the standard assumptions underlying public perception and attitudes about drone strikes.

Results

[Figure 1](#) displays ordinary least squares (OLS) estimates (predicted mean values along with their 95 percent confidence intervals) of public support for militarized intervention per each experimental condition across all survey samples along with the pooled sample. All corresponding OLS regression tables, including models with control variables, are displayed in the online appendix (Table A4). While there are some idiosyncrasies in terms of differences between the control (paratroopers scenario) and Drones treatment, based on the pooled sample we can see that the shift in support by 0.23 is clearly discernible and statistically significant ($p < 0.01$). Respondents report greater support for intervention involving drones ($M = 4.00$, $SD = 2.09$) rather than paratroopers ($M = 3.77$, $SD = 2.16$). The difference between the control condition and the Drones treatment with additional “no risk of life” framing (i.e., Drones + booster) is slightly more accentuated ($M = 4.06$, $SD = 2.15$). It is likewise evident that this shift is driven by the Polish survey ($p < 0.01$) and, to some extent, also by one of the Italian samples (Italy 2; difference between the control and Drones + booster with $p < 0.05$). The other Italian sample, which is less representative of the general Italian population, and data from Germany yield insignificant differences. The overall effect sizes, as expressed by Cohen's d , are 0.11 and 0.14 for the Drones and Drones + booster treatments, respectively. This means that the effect is rather small and potentially negligible. Together, these results indicate that outside the United States, the public is likewise more supportive

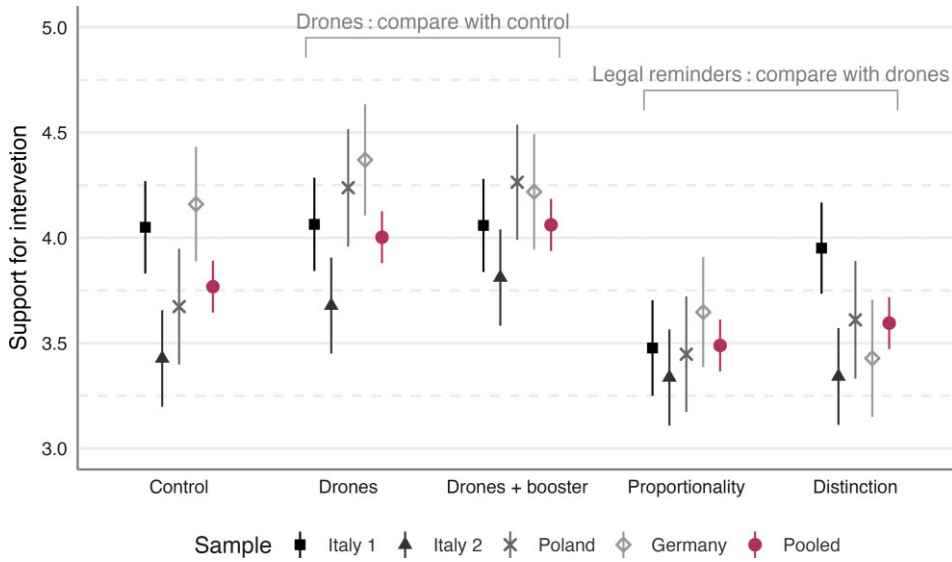


Figure 1. Predicted mean support for interventions across all experimental conditions and samples

of military intervention involving drone strikes vis-à-vis intervention involving paratroopers. These effects are nonetheless quite small. Moreover, explicitly informing the public of the fact that drones reduce the risk of military casualties does not lead to more sizable effects.

More pronounced are the effects of legal reminders. It is clear from Figure 1 that the proportionality framing leads to a statistically significant ($p < 0.001$) decline in support for intervention of more than 1 point vis-à-vis the Drones + booster condition in all samples (note that the Drones + booster treatment is a relevant comparison group in this case, as all scenarios with legal reminders also included information about the reduced risk of death). The effect size in the pooled sample expressed by Cohen's d amounts to 0.27, signifying a small to moderate effect. The distinction framing also reduces support for intervention, and the difference vis-à-vis the Drones + booster condition is strongly statistically significant ($p < 0.001$), yet the magnitude of the effect is slightly smaller. The corresponding Cohen's d related to the effect of the distinction framing is 0.23, meaning that the effect is small. This smaller effect size is driven by the fact that in one of the Italian samples (Italy 1), the distinction prompt did not result in statistically significantly lower support for intervention. As previously noted, the first Italian sample (Italy 1) is less valid in terms of quota representativeness, and this potentially explains the lack of identifiable effects for this sample. As such, we perceive the results from the second Italian sample (Italy 2) as more externally valid. Legal reminders clearly can sway public opinion in the selected non-US samples, although these effects are not large.

In Figure 2, we further report respondents' perceived military losses in terms of casualties across main experimental conditions (control and two Drone treatments) and all samples. We again present predicted mean values along with their 95 percent confidence intervals derived from OLS estimation (in the online appendix, Table A5, we report all relevant regression tables). It is evident that all treatment conditions with information about drones led to lower assessments of military casualties compared to the control condition involving paratroopers. Since the results are quite consistent across the samples (with a notable exception of one of the Italian samples, Italy 1, which reinforces the outlying nature of this sample), we continue

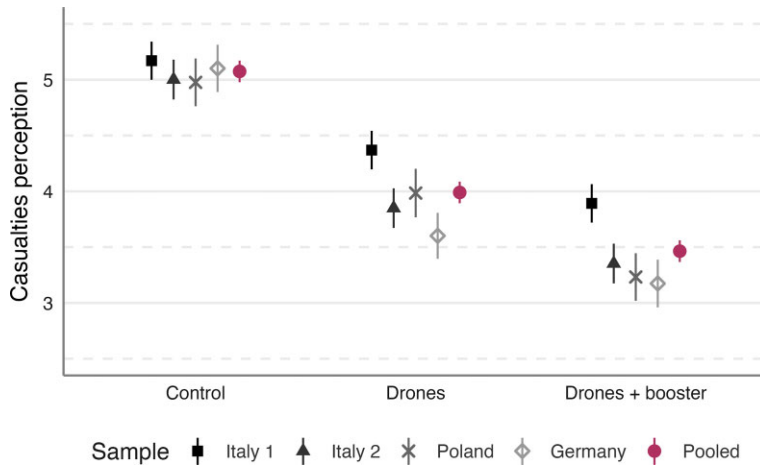


Figure 2. Predicted mean perception of casualties across all experimental conditions and samples

with interpretations for the pooled sample. Notably, we observe a statistically significant drop ($p < 0.001$) of approximately 1 point in perceived military losses when comparing the control condition ($M = 5.07$, $SD = 1.45$) and the Drones treatment ($M = 3.99$, $SD = 1.67$). This drop is even more marked when contrasting these two groups with the Drones + booster treatment ($M = 3.46$, $SD = 1.77$).

Although people appear to have a correct understanding of the lower risk of death of their country's military personnel, this understanding can be further boosted with a relevant piece of information. The difference between the Drones treatment without further information and the Drones + booster treatment of approximately 0.5 is highly statistically significant ($p < 0.001$). It is of note, however, that this even lower assessment of perceived military losses did not translate into further support for drone strikes, which may suggest that in the European context, casualty aversion might have a limited mediating effect, at least beyond a certain threshold.

Conclusion

Our initial motivation for the survey experiments was suspicion that public attitudes about drone strikes could differ cross-nationally. Different cultural norms, foreign policy doctrines, conflict or war experiences, or national security approaches could shape public perceptions of and attitudes about the use of force or interventions vis-à-vis traditional military operations or drone strikes. By extending Kreps' (2014) and Walsh and Schulzke's (2018), we test verified prompts or framing that influence respondents' support for drone strikes and generate survey results from non-US samples that are comparable to their original US samples.

We find two similarities and one potential difference. First, the similarities. Respondents in all three countries we surveyed (Italy, Poland, and Germany) were more supportive of a drone strike compared to deploying paratroopers. And when respondents were given additional information about the legal, ethical, or moral implications of drone strikes (proportionality and distinction prompts), support for drone strikes significantly, both statistically and substantively, decreased. This is also consistent with Lushenko and Raman's (2024) research on French public opinion. Our results contribute to a growing body of second-generation public opinion research on drones that confirms the generalizability of Kreps' (2014) original find-

ings, which was one of our original motivations for conducting this study. The important (potential) difference is that although respondents recognize that drone strikes reduce the risk to their military servicemembers' lives, we do not observe a significant shift in attitudes related to casualty aversion when respondents are specifically prompted with additional information about the reduced risk of physical harm to their country's servicemembers. Perhaps this means casualty aversion is a phenomenon predominately influential in the United States following the social and political trauma of the Vietnam War and because of continual military interventions since then. While the three European countries we surveyed experienced significant losses in WW II, there has not been the same continued presence of military casualties as in the United States. To better understand this caveat, one would also need to run a similar experiment in the United States; namely to treat respondents with a vignette about drone strikes with and without an additional reminder on casualty aversion. Alternatively, as [Gelpi, Feaver, and Reifler \(2006, 2009\)](#) find, casualty aversion is not a static attitude and can change depending on the public's perception of the moral or normative rightness or wrongness of a war. Using drone strikes to eliminate terrorist threats, particularly from well-known terrorist groups like al Qaeda (the terrorist group in our survey vignettes), may counter a casualty aversion effect in our survey experiment.

Overall, the results suggest that ongoing drone proliferation could meet little public resistance cross-nationally because there appear to be consistent preferences for drone strikes over military deployments in all three countries we surveyed. This is similar to public attitudes in the United States ([Kreps 2014](#); [Walsh and Schulzke 2018](#); [Bodderly and Klein 2021](#)). If governments can design operational protocols and procedures to, as best as possible, respect proportionality and distinction principles of international humanitarian law, then there may be minimal public resistance to using drone strikes to accomplish foreign policy and national security goals.

Recent and ongoing developments in the Third Drone Age, including increased drone proliferation driven by demand-side and supply-side processes (production, acquisitions, and capabilities), targeting decisions, and violent nonstate actors' use of drones ([Bunker 2015](#); [Almohammad and Speckhard 2017](#); [Archambault and Veilleux-Lepage 2020](#); [Rogers 2022](#); [Kunertova 2023](#); [Lushenko 2024a](#)), encourage future survey experiment research with prompts leveraging and testing new scenarios, risks, and benefits. For example, US President Trump's drone strike against Iranian general Soleimani could be a watershed moment in interstate target selection, as government officials and leaders become caught in the crosshairs, or whether terrorist groups' use of drones influences public attitudes about their country's use of drone strikes against terrorists. Our research supports the blossoming second generation of public opinion research on drone strikes and warfare and demonstrates its importance ([Silverman 2019](#); [Dunn and Wheeler 2024](#); [Lushenko 2024a,b](#); [Lushenko and Raman 2024](#)).

Supplementary Information

Supplementary information is available at the [Foreign Policy Analysis](#) data archive.

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