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Fear and Loathing: Understanding Risk Perception for Terrorism and its Relationship with Islamophobia

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FEAR AND LOATHING: UNDERSTANDING RISK PERCEPTION FOR TERRORISM IN THE UNITED STATES AND ITS RELATIONSHIP WITH ISLAMOPHOBIA

by

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Under the Direction of John G. Horgan, PhD

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ABSTRACT

Americans tend to have strong psychological responses to terrorism (e.g., fear, anxiety) even though terrorism poses a very low objective risk of injury or death. Unfortunately, this is exactly what terrorists hope to cause. Terrorism is one of Americans' top fears and more than 40% of Americans worry that they will be victims of terrorism (Gallup, 2017a). Additionally, since Muslims are commonly blamed for and associated with terrorism in the US, Islamophobia, or the unreasonable fear of Islam and Muslims, is a common response to terrorism. Terrorism-driven Islamophobia even manifests as hate speech against Muslims, hate crimes against Muslims, and targeted killings of Muslims. Such responses may relate to Americans' risk perceptions for terrorism (RPT)—their subjective estimates of the likelihood that terrorism will cause injury or death. Little has been done to measure RPT. As such, this study tests a comprehensive measure of RPT while also assessing its relationship with Islamophobia. With data from a nationally representative sample of 512 US adults (collected via Qualtrics), structural equation modeling (SEM) was used to evaluate the psychometric validity of an RPT measure that included twelve items spanning the multiple facets of RPT based on previous risk perception research. Results indicated good fit to the data, supporting the measure's validity. In addition, the results indicated that there was a significant, positive relationship between RPT and Islamophobia. It seems that Americans tend to overestimate RPT and that this phenomenon is positively associated with reported levels of Islamophobia. Future research should test for a causal relationship between RPT and Islamophobia, which may lead to opportunities to reduce Islamophobia by reducing RPT. Additional findings suggest that RPT is more strongly driven by perceptions of risk to individuals, rather than the US as a nation, and that tens of millions of Americans exhibit Islamophobia, aligning with previous research. Future

directions, implications for risk communication strategies for terrorism, and the evolution of Americans' perceptions of terrorism are discussed.

INDEX WORDS: Risk perception, Terrorism, Islamophobia, Structural equation modeling, Responses to terrorism, Risk communication

Fear and Loathing: Understanding Risk Perception for Terrorism in the United States and its Relationship with Islamophobia

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DEDICATION

As I approach the end of my doctoral journey, I find that I am overwhelmed by the goodness and faithfulness of God. I thank God for my life, the breath in my lungs, and the brain in my head, none of which I did anything to earn. This dissertation is dedicated to him first and foremost. I hope and pray that he use my career for his glory, for the advancement of knowledge, and for the good of others.

This dissertation is also dedicated to my parents for their tireless and selfless support. I could not have done this without you. I thank you for always being there for me at every step and stage, for always encouraging and supporting me, and for fostering my curiosity and educational achievement from my first breath. It cannot adequately communicate my gratitude for all the times you have sacrificed your wants for mine, but I can hope to emulate your example half as well when I have my own children.

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1.1 Risk Perception for Terrorism

"How extraordinary! The richest, longest lived, best protected, most resourceful civilization in history… is on its way to becoming the most frightened… Today, there are risks from numerous small dams far exceeding those from nuclear reactors. Why is the one to be feared but not the other?"

- Aaron Wildavsky (1979, p.3)

"Much of the reaction to the September 11 attacks calls to mind Hans Christian Andersen's fable of delusion, "The Emperor's New Clothes"… Unlike the emperor's new clothes, terrorism does of course exist. Much of the reaction to the threat, however, has a distinctly delusionary quality."

- John Mueller & Mark Stewart (2012, p.96)

1.1.1 Risk

Risk is a concept with which humankind is innately familiar– we cannot exist without it and it is a major part of everyday life. People continuously assess risks as part of their decision-making. For example, people commonly invoke risk as a reason to avoid a certain course of action (e.g., making a risky investment) or, occasionally, as a reason to take a certain course of action (e.g., BASE jumping). Colloquially, risk tends to be synonymous with danger or peril, although, because risk means different things to different people, there is no clear or uniform definition among the lay public (Renn, 1998; Slovic, 1987).

Researchers have defined risk in various terms, but there are common components (Joffe, 2003; Renn, 1998) that lend themselves to the creation of a conceptual definition, which will define risk perception as a foundational construct for this study. Three key concepts commonly arise in academic definitions of risk that supplement the typical lay understanding of risk as

danger: 1) risk is the possibility of *future* harm or loss, 2) risk is the *probability* of that harm or loss occurring, and 3) it is *uncertain* whether or not the future or harm will actually occur (Joffe, 2003; Renn, 1998; Sjoberg, 2000a; Slovic, 2000). Another component sometimes included is the magnitude of the harm (Slovic, 1987; 2000). One body of research, risk assessment (aka., risk analysis), conceptualizes risk as quantifiable and utilizes sophisticated and technical analyses to calculate precise risk estimates for various events, such that both the probability of a risk as well as the magnitude of its harm are accounted for mathematically (Douglas, 1994; Slovic, 1987). Exact risk can never be known (it is inherently uncertain), but formal risk estimates (FREs) systematically and rationally quantify risk, and are thus considered the most accurate means to estimate a hazard's risk (Fischhoff, Lichtenstein, Slovic, Derby, & Keeney, 1983; Plattner, Plapp, & Hebel, 2006).

Risks are distinguished from hazards. Hazards are the source of harm themselves (e.g., terrorism) whereas risks are the probability of that hazard actually causing harm (e.g., the likelihood of a person being killed by terrorism). Often, FREs are made using known rates of occurrence for a given hazard. For instance, the risk of death by car accident in the United States (US) may be formally calculated by the dividing the number of people killed in car accidents in the US in a given year by the total US population that year. This is a valuable field of inquiry, as probabilistic FREs offer guidance for those who must make informed decisions relating to risk and safety (e.g., insurance companies, governments, and others who seek to manage risk; Goussen, Price, Rendal, & Ashauer, 2016). However, FREs cover only a tiny sliver of the psychology of risk, which, in everyday judgments, is rarely rationally quantified or calculated.

1.1.2 Risk Versus Risk Perception

To consider risk as it actually exists in the real world, we must shift our attention from FREs to risk perceptions (Joffe, 2003). Risk, as it exists in the minds of the vast majority of people the vast majority of the time, is inextricable from social constructions of hazards (Douglas, 1994; Joffe, 2003), attitudes towards hazards (Sjoberg, 2000a; 2000b), and the biases, including those of emotion, inherent in human processing (Slovic, 1987). Research has clearly demonstrated that people's approximations of risk are not accurately calculated and are not based on rational models (Kahneman, Slovic, & Tversky, 1982; Slovic, 1987). In fact, people tend not to trust FREs, since they are calculated so differently from lay risk perceptions (Slovic, 1993). As such, there is a real distinction to be made between the objective, formally calculated risk for a hazard and the risk that the public ascribes to a hazard (i.e., risk perception), and it may only be practical for psychologists to consider risk perception as a predictor of cognition, emotion, and behavior and, where useful, to assess the level of discrepancy between FREs and risk perceptions. This study measures risk perception for terrorism, that is, how risk for terrorism actually exists in typical human psychology, rather than FREs for terrorism.

1.1.3 Risk Perceptions are Subjective

Research concerning risk perception has enumerated three primary sources of influence that separate realistic approximations of risk (i.e., FREs) from risk perceptions. They are 1) the social and cultural meaning associated with hazards, termed 'social construction' in this study, 2) the cognitive biases that are predictably found in human judgment and decision-making, and 3) the impact of affect in judging risk. All, naturally, are linked to one another; ordering them in this way is not to imply that they are truly separate phenomena or that there is not substantial interaction between them.

Of course, scholars have noted that simply because risk perceptions are less objective or technically accurate than FREs does not necessarily diminish their practicality or validity (Slovic, Finucane, Peters, & MacGregor, 2004). Rather, they argue that because risk perceptions are intrinsically linked to social constructions of risks, they are potentially more valuable for understanding the psychology of risk than FREs (Douglas, 1994; Joffe, 2003; Moscovici, 1984). Community psychologists have long posited that individuals do not exist in vacuums (Trickett, 1996; Sarason, 1974) and unsurprisingly, neither do their views of risk. One's worldview and social representations create meaning for hazards, which influence the risk perception for that hazard (Slovic, 1997). Risk perception is based on how each person subjectively views a hazard (e.g., terrorism) and is thus powerfully influenced by the social and cultural forces of their contexts.

Researchers have conducted a prodigious amount of research on how cognitive processes influence risk perceptions. Beginning, arguably, with the work of Tversky and Kahneman (1974), judgment and decision-making (JDM) researchers have uncovered a multitude of cognitive biases that push typical human judgments away from objective reality. As applied to risk, cognitive biases often push risk perceptions for threats away from a hazard's FRE. Biases are natural in human cognition, a product of limited cognitive resources, which people seek to conserve (i.e., cognitive miser theory; Fiske & Taylor, 1984), as well as automatic or intuitive thinking, which takes place very quickly and uses little executive functioning (Sloman, 1996; Slovic & Peters, 2006). Sloman's (1996) conceptualizations of dual processes of cognition have been expanded upon to distinguish quick, intuitive "hot cognition" from conscious, deliberate, elaborative "cold cognition". The quick, subjective thinking which people often use to form their risk perceptions, relies on mental shortcuts, called heuristics. Although the use of heuristics is

"highly economical and usually effective" (Tversky & Kahneman, 1974: 1124), it also leads to consistently biased perceptions of and decisions about risk (Slovic, 1987). A common example is the use of stereotypes, which is known to increase when people are under cognitive load (that is, when cognitive resources are depleted; Spears & Haslam, 1997).

The influence of affect as an agent of cognitive bias has been especially intriguing to researchers, since emotion has long been considered the enemy of calculated, reasoned judgment (e.g., the ancient Stoics). Some researchers have named it as a heuristic all its own (the affect heuristic) and have studied its effect on JDM (Finucane, Alhakami, Slovic, & Johnson, 2000; Lerner, Gonzalez, Small, & Fischoff, 2003; Slovic, Finucane, Peters, & MacGregor, 2006; Slovic & Peters, 2006). As it relates to risk perception, Slovic and Peters (2006) describe the affect heuristic as the process in which the intuitive emotions one has regarding a hazard become the basis of one's perceptions of risk for that hazard. As the authors note, "Most risk analysis in daily life is handled quickly and automatically by feelings arising from what is known as the ''experiential'' mode of thinking" (Slovic & Peters, 2006, p. 322). In other words, people judge the risk of something at least partly based on how they feel about it (Alhakami & Slovic, 1994). Specifically, emotions such as fear (Lerner, Gonzalez, Small, & Fischoff, 2003) and dread (Fischhoff, Slovic, Lichtenstein, Read, & Combs, 1978) have been shown to inflate risk perceptions for a hazard well beyond the hazard's FRE. Risk perceptions for any hazard are likely to be biased, inaccurately reflecting the hazard's objective risk, which FREs reflect most closely. This is likely to be especially true for terrorism, which is laden with social and cultural meaning and is vulnerable to heuristics, especially the availability and affect heuristic (Breckenridge, Zimbardo, & Sweeton, 2010).

1.1.4 Risk Perceptions for Terrorism

Risk perception research has covered many hazards, from the frequent and mundane (e.g., heart disease, car accidents, and asthma) to the unpredictable and dramatic (e.g., smallpox outbreaks, terrorist attacks, and lightning strikes), what Renn (1998, p.59) calls "Damocles' sword" risks and Slovic (1987) calls "dread risks" (Lichtenstein, Slovic, Fischhoff, Layman, & Combs, 1978; Gigerenzer, 2004). Before the September 11 terrorist attacks (aka., 9/11), public reactions to nuclear technology, both in the form of energy production and weaponry, led researchers to frequently discuss nuclear power as the influential dread risk of the day. But since 9/11, terrorism has overtaken nuclear power as the *du jour* catastrophic, albeit unlikely, source of risk (Slovic & Peters, 2006). As mentioned, risk perception in the real world is an intuitive, rather than a rational, process, and like judgments about other hazards, risk perceptions for terrorism, specifically, are likely to be biased (Marshall et al., 2007; Slovic & Peters, 2006; Slovic, 2000). In fact, there is much research to suggest that we should expect risk perceptions of terrorism to be biased, such that they are unrealistically large.

Long before 9/11 and the War on Terror, Lichtenstein et al. (1978) noticed that the public perceived the risk for some threats as much greater than others. They found that participants overestimated risk for infrequent hazards (e.g., lightning strike) and underestimated risk for frequent hazards (heart disease). Slovic (1987; 2000) has since demonstrated that people are biased to perceive disproportionately high risk for uncommon hazards. Sunstein (2003) extends this to terrorism specifically, suggesting that such strong reactions to terrorism stem from a bias in risk perception for terrorism, one that he refers to as probability neglect. This occurs when a hazard's consequences are very harmful; people are so focused on how much harm the event would cause if it did happen, that they neglect to think about how very unlikely it is that it will

happen. This evidence suggests one should expect overestimated risk perceptions for terrorism, despite its low frequency, compared to risk perceptions for more common hazards that are less catastrophic in nature, such as homicides or car crashes.

Lichtenstein et al. (1978) also found that participants gave higher risk estimates for events they were disproportionately exposed to, which made those events more memorable. Six years later, Tversky and Kahneman (1984) put a name to this phenomenon, the availability heuristic. Many social scientists, including JDM scholars, have noted that Americans' strong reaction to terrorism is related to the frequency and intensity of media portrayals of terrorism (Marshall et al. 2007; Mueller, 2006; Mueller & Stewart, 2012; Nellis & Savage, 2012; Sunstein, 2003) and, based on previous research (Breckenridge et al., 2010), it is logical to guess that this relationship is mediated by inflated risk perceptions for terrorism.

Additionally, risk perceptions for terrorism are also likely to be unrealistically high because terrorism is both unknown and dreaded. According to Slovic (1987), risk perceptions tend to increase when hazards are unknown (i.e., when they are difficult to observe, predict, and little is known about their workings) and when hazards are dreaded (i.e., when they are not easily reduced, can harm or kill many people all at once, and high-consequence; Gigerenzer, 2004; Slovic, 1987), even when FREs for the hazard are low. Terrorism is the poster child for both of these characteristics (Gigerenzer, 2004; Slovic, 1987), as it is highly unpredictable, poorly understood, and widely dreaded.

Risk perceptions can influence people's emotions about hazards, but people's emotions about hazards can also influence risk perceptions (Lerner & Keltner, 2000; 2001). Terrorism is an emotionally-laden hazard for Americans due to both socially constructed and objective threats. Most Americans had strong emotional reactions to 9/11 and strong emotional reactions to

terrorism have continued into subsequent decades (Sinclair & Antonius, 2012). In addition, the emotional resonance that terrorism has had in the US has been used to rally public support for a variety of foreign and domestic policies (Mueller, 2006; Mueller & Stewart, 2012). Researchers have already demonstrated the effect of the affect heuristic on responses to terrorism, specifically that fear tends and anger about terrorism influences peoples' behaviors related to terrorism (Breckenridge et al., 2010; Lerner, Gonzalez, Small, & Fischoff, 2003). The effect that the powerful negative emotions surrounding terrorism may have on risk perceptions for terrorism should not be discounted.

1.1.5 Comparing Perceived Risk of Terrorism to Formal Risk Estimates

Available FREs indicate that the risk for terrorism is extremely low. According to the Cato Institute, the approximate likelihood of an American civilian being killed by terrorism is 1 in 20 million (Nowrasteh, 2016). According to STARTS's Global Terrorism Database, since 9/11 an average of about 18 Americans worldwide were killed by terrorism per year (START, 2017). Taking into account the US population for those years, the likelihood of a randomly selected American being killed by a terrorist attack anywhere in the world (even if they were the perpetrators) is around 1 in 17 million in an average year. Compared to being killed by heart disease (~1 in 517; CDC, 2015), being killed in a car accident (~1 in 10,000; CDC, 2015), or being killed by another American (also ~1 in 20,000; CDC, 2015), being killed by terrorism is a negligible threat to safety. Even being killed by a lightning strike (~1 in 5.5 million; CDC, 2015) is about four times more likely than being killed by a terrorist attack. These FREs have led experts to suggest that terrorism poses a very low risk to Americans (Michaelsen, 2012; Mueller & Stewart, 2012). One would expect risk perceptions for terrorism to be far greater than FREs for terrorism.

But despite the fact that there are many reasons to believe risk perceptions for terrorism will be inflated, no study has ever compared risk perceptions of terrorism to FREs of terrorism's risk. Since 9/11, most studies of responses to terrorism have measured fear of and worry about of terrorism (Sinclair & Antonius, 2012), while others have asked participants to estimate how frequently past terrorist attacks have occurred (Kearns, Betus, & Lemieux, 2019). These should not be considered proxies of risk, since fear, anxiety and worry are very different constructs from risk perception, and are more likely to be *byproducts* of risk perception for terrorism rather than approximations of it (Sjoberg, 1998). It is also ill-advised to measure risk perception using appraisals of a hazard's *past* frequency, since risk, as mentioned, is the probability of future harm occurring. Two studies have attempted to operationalize perceived risk of terrorism in a way that matches risk perception as a construct. In a field experiment, Lerner and colleagues (2003), asked participants to provide risk perceptions for many hazards that could cause harm to Americans. Some items measured risk perceptions for terrorism, but these were averaged with other items measuring risk perception for other hazards as well. In 2010, Breckenridge et al. measured risk perception for terrorism by asking participants to rate the probability (from 0 to 100) of future terrorist attacks occurring, but not about the harm they might cause. Both studies provide helpful precedent for how one might measure risk perceptions for terrorism. In particular, Breckenridge et al.'s methods are useful, but have limitations (as do all measures) and may be improved upon (see Ch. 3: Methods).

One of the two primary aims of this project is to comprehensively and accurately measure risk perception for terrorism. This measure will also provide some initial, exploratory insight as to whether Americans' risk perceptions for terrorism are realistic (that is, approximately close to FREs of terrorism's risk). In the following chapter, evidence is discussed for why one might

expect unrealistically high risk perceptions for terrorism to be associated with negative responses to terrorism, such as Islamophobia.

1.2 Risk Perception for Terrorism's Relationship with Responses to Terrorism

"To take revenge for the thousands of European lives lost to terror attacks throughout European lands."

- Brenton Tarrant, Christchurch mosque shooter/White supremacist terrorist, on why he carried out the attack in his manifesto "The Great Replacement" (Tarrant, 2019)

"The scenes of death in the two mosques are enough to wake the sleep and incite the supporters of the caliphate who live there to take vengeance for their religion and for sons of their Ummah, who are killed everywhere in the world."

- ISIS spokesman Abu Hassan al-Muhajir, in response to the shootings at Christchurch mosques (Al Furqan, ISIS media organization, 2019)

1.2.1 Violence Begets Violence, Terrorism Begets Terrorism

It is well-established that exposure to general violence stimulates violent behavioral responses (Bach-y-Rita & Veno, 1974; Bandura, 1973; Lewis, 1979; Widom, 1989; Widom & Maxfield, 2001) and there is also substantial evidence that exposure to ideological violence (violence motivated by the desire to bring about social or political change) stimulates retaliatory ideological violence (Byers & Jones, 2007; Canetti, Hall, Rapaport, & Wayne, 2013; Quota, Punamaki, Miller, & El-Sarraj, 2008; Swahn, Mahendra, Palouzzi, et al., 2003). Opposing groups often feel that they have been targeted and victimized by their adversaries, that they must respond in kind, and that they are justified in doing so (Littman & Paluck, 2015; Noor, Shnabel, Halabi, Nadler, 2012). Some salient examples include the cyclical violence in Israel and Palestine and the reciprocal radicalization found between Islamist terrorist groups and far-right

terrorist groups. The Christchurch mosque shootings and their aftermath provide a clear example of reciprocal radicalization. The shooter claimed his violence against Muslims was justified and required because of Islamist terrorism. Days later, the Islamic State claimed that Islamist terrorism was justified and required because of his act of extreme right-wing terrorism. So too, in the US, it seems likely that exposure to Islamist terrorism (or terrorism perceived to be Islamist) has increased Islamophobia and violence towards Muslims.

Although these cycles of reciprocal radicalization are known to exist, their underlying psychological mechanisms have not been thoroughly studied (Bailey & Edwards, 2017). In the years since 9/11, a specific form of ideological violence, terrorism, has been especially impactful for how Americans process intergroup threat and conflict (Crowson, DeBacker, & Thoma, 2005; Huddy, Feldman, Taber, & Lahav, 2005; Oswald, 2005). Although terrorism makes up an infinitesimal proportion of violence in the US, it has a tremendous impact on public opinion and policymaking (Atran, Axelrod, Davis, & Fischhoff, 2017). There is ample research to show that risk perceptions for hazards determine peoples' responses to those hazards (Slovic, 2000). As such, it is likely that risk perceptions for terrorism (RPT) are related not only to individual responses to terrorism such as fear and anxiety, but also to social responses, such as hostility towards groups thought to be responsible for terrorism (Marshall, Bryant, Amsel, et al., 2007). In America, the group most associated with, and held responsible for, terrorism is Muslims (Swahn et al., 2003). Therefore, it is important to investigate the link between RPT and retaliatory responses, like Islamophobic attitudes and behaviors.

1.2.2 Risk Perceptions Predict Attitudes and Decisions

Since the relationships between RPT and responses to terrorism have never been tested, it is important to mention the following evidence for why one might expect RPT to predict

responses to terrorism, such as Islamophobia. Risk perceptions are a form of judgment—evaluations about the world that humans use to form attitudes and make decisions (Fischoff, 2013). Risk perceptions for a hazard influence how people think about the hazard and how they respond to it (i.e., their attitudes and decisions; Lazarus, 1966; Lazarus & Folkman, 1984; Roseman, 1996; Scherer & Brosch, 2009). Research in cognitive behavioral therapy (Beck, 1967), social cognition (Tversky & Kahneman, 1974), and JDM (Slovic, 1987) all theorize and demonstrate that risk perceptions influence responses to events and situations even if those risk perceptions are inaccurate, distorted, or biased. Risk perceptions for hazards generally predict peoples' responses to them—the same should be expected for RPT.

1.2.3 Negative Psychological Responses to Terrorism

There is no question that terrorism is a serious problem in the modern world, resulting in physical losses in terms of human life, structural damage, and economic damage (Horgan, 2014). But primarily, the negative effects of terrorism are psychological, not physical (Ganor, 2005). Terrorist attacks are purposefully designed to inflict psychological damage (Badey, 1998; Horgan, 2014; Laquer, 1999; Victoroff, 2005; Wolfendale, 2006) and terrorists intend to produce fear, anxiety, and overreactions to coerce the political changes they desire (Ganor, 2005; Horgan, 2014). Such outcomes are inherently influenced by risk perceptions for terrorism.

1.2.3.1 Fear and Anxiety Related to Terrorism

Based on existing data on responses to terrorism, it seems that Americans believe terrorism poses a high risk to their safety, despite the objectively low risk that terrorism actually poses. In the decade following 9/11, most Americans feared that a terrorist attack would occur soon, that they or their loved ones would be hurt or killed by terrorism, and believed that terrorism was a serious threat to safety (Huddy, Feldman, Taber, & Lahav, 2005; McDermott &

Zimbardo, 2007; Sinclair & LoCicero, 2006; Somer, Ruvio, Soref, & Sever 2005; Somer, Ruvio, Sever, & Soref, 2007; Toner & Elder, 2001). In recent years, terrorism still remains one of Americans' top fears (Chapman University, 2016; Gallup, 2015; 2017a). In 2016, 51% of Americans worried that they would become victims of terrorism, and in 2017, 42% of Americans worried that they would become victims of terrorism (Gallup, 2017b). Other research has shown that Americans experience long-term persistence of terrorism-related anxiety and fear that are sub-clinical (i.e., apart from discrete psychological disorders such as PTSD), but still highly impactful on attitudes and behavior (Boscarino et al, 2004; 2006; Eisenberg & Silver, 2011; Lerner, Gonzalez, Small, & Fischoff, 2003; McDermott & Zimbardo, 2007; Richman, Cloninger, & Rospenda, 2008; Rubin, Brewin, Greenberg, et al., 2005; Sinclair & LoCicero, 2006; Somer et al., 2005; Toner & Elder, 2001). For instance, 38% of Americans are less willing to attend events with crowds because of terrorism (Gallup, 2017b) and 46% are less willing to leave the country because they are worried about terrorism (Gallup, 2017a). One study even found that, because so many people were avoiding air travel, the influx of drivers on the road in the three months following 9/11 actually resulted in an increase in traffic deaths that was greater than the number of deaths due to the 9/11 terror attacks (Gigerenzer, 2004). All this fear, anxiety, and worry associated with terrorism may well be related to Americans' RPT.

1.2.3.2 Clinical Responses to Terrorism: Stress Disorders and PTSD

Exposure to terrorism has been linked to other detrimental psychological outcomes; the most thoroughly studied and empirically supported are clinical stress disorders, such as PTSD (Boscarino, Galea, Adams, et al., 2004; Holman, Silver, Poulin, et al., 2008; North & Pfefferbaum, 2002; North, Tivis, McMillen et al., 1999; Silver, Holman, MacIntosh, et al., 2002). There is a robust body of evidence linking terrorist attacks across time and cultures to

increased clinical distress among target populations (Durodié & Wainwright, 2019; Sinclair & Antonius, 2012). It is likely that terrorist attacks in the past few years, such as the Pulse nightclub shooting in Orlando, Florida, and the Walmart shooting in El Paso, Texas, created such increases, although no research has been conducted to support this conjecture.

1.2.3.3 Islamophobia as a Response to Terrorism

Terrorism also negatively impacts Americans' intergroup dynamics and socio-political decision-making in ways that do not fit well in existing (i.e., clinical) psychological frameworks for addressing terrorism's effects (North & Pfefferbaum, 2002; Sinclair & Antonius, 2012). Terrorism is an inherently social phenomenon, and terrorists seek to threaten groups that hold a fundamentally different social identity (whether ideological, racial, or religious) from their own (Horgan, 2014). Because terrorism involves a threat from people of a different social category (out-group members), reciprocal out-group hostility is an unsurprising response to terrorism. Exposure to terrorism is associated with increased hostility towards out-groups in terms of both attitudes and behaviors (Canetti, Hall, Rapaport, & Wayne, 2013; Hirsch-Hoefler, Canetti, Rapaport, & Hobfoll, 2016; Marshall et al., 2007; Steele, Parker, & Lickel, 2015; Swahn et al., 2003), but compared to clinical responses to terrorism, these socially rooted effects have been little studied. Although the long-term effects of terrorism on intergroup dynamics are not precisely known, it is clear that exposure to terrorism creates hostility between groups, particularly among those who are willing and able to differentiate their in-group from an "other" who they believe is responsible for the terrorism. For instance, across contexts, researchers find that those exposed to terrorism are more aggressive in terms of which political actions they support: they are more likely to eschew peacemaking or compromise and instead to favor violent reprisals against enemies (Canetti, Hall, Rapaport, & Wayne, 2013; Hirsch-Hoefler, Canetti,

Rapaport, & Hobfoll, 2016; Littman & Paluck, 2015; Noor, Shnabel, Halabi, Nadler, 2012). When there is an established “us” and “them”, exposure to terrorism also is known to intensify negative attitudes towards “them”. In Israel, the association between exposure to terrorism (e.g., living near to a contested border or knowing victims of terrorism) and hostile attitudes towards residents of bordering countries is well documented (Besser & Neria, 2009). Scholars contend that the out-group hostility that comes as a response to terrorism, such as racism, targeted violence, and xenophobia, poses a greater threat to democracies than terrorism itself (Mueller, 2006a; Mueller, 2006; Mueller & Stewart, 2012; Schmid, 2005; Wolfendale, 2006). Others argue such responses actually increase terrorists' power and reinforce their behavior (Braithwaite, 2013; Jenkins, Hoffman, & Crenshaw, 2016; Mueller, 2006; Piazza, 2017).

The ways in which people assign blame for terrorism influences willingness to retaliate against groups perceived as responsible (Swahn et al., 2003). In America, the out-group hostility aroused by terrorism generally takes the form of Islamophobic attitudes, discrimination towards, and even violence against Muslims, Arabs, and Middle Easterners. Since 9/11, Americans have consistently associated Islam as a religion, and Muslims as people, with terrorism and tend to hold them responsible for terrorism (Awan, 2010; Elver, 2012; Kearns, Betus, & Lemiuex, 2019; Lee, Gibbons, Thompson, & Timani, 2009; Swahn et al., 2003). The resulting hostility towards Muslims is known as Islamophobia, which is defined as the unreasonable fear of Muslims and Islam. Islamophobia also entails negative and hostile attitudes towards Muslims, such as prejudice and mistrust, and hostile behaviors towards Muslims such as discrimination and aggression (Ciftci, 2012; Dekker & Van der Noll, 2007; Lee et al., 2009; Lee, Reid, Short, Gibbons, Yeh, & Campbell, 2013). There is evidence that Islamophobia, as a response to terrorism, manifests in several ways in the US. Americans show support for policies that are

meant to protect the US from terrorism, but that also exhibit hostility towards Muslims, for example, support for torturing Muslim terror suspects, enacting travel bans that discriminate against Muslims, and curtailing civil liberties for Muslim communities (Altheide, 2006; Gallup, 2011; 2017a; Kearns, 2018; Pew, 2018; Wetherell, Weisz, Stolier, et al., 2013). Negative attitudes about Muslims, such as that Muslims are dangerous and untrustworthy, or that they should be avoided and surveilled, increased sharply following 9/11 and continues into recent years (Abdelkader, 2016; Deane & Fears, 2006; Lee et al., 2013). Most alarmingly, Islamphobic aggression and violence, such as hate crimes against Muslims and targeted killings of Muslims, also increases as a direct response to terrorism in the US (Abdelkader, 2016; Byers & Jones, 2007; Swahn et al., 2003). This effect seems to apply not only to actual Muslims, but to anyone who may be construed as Muslim, or "those racialized to be Muslim" (Samari, Alcala, & Sharriff, 2018, p.1) by generally appearing Middle Eastern, Arab, or even just having brown-skin (Swahn et al., 2003; Marshall et al., 2007). Even before 9/11, Americans responded to terrorism with Islamophobia; days after the Oklahoma City Bombing[1] local radio announcers suggested all Arab-Americans be placed in internment camps because of the bombing (Linenthal, 2003). In addition, there was also a sharp spike in Islamophobic hate crimes (Linenthal, 2003).

Islamist terrorists actually hope to create such intergroup conflict and division in their target populations and thereby create grievances to justify their cause and support their recruitment strategies (Horgan, 2014). For instance, ISIS members referred to Executive Order 13769 (the "Muslim travel ban") as "the Blessed ban", celebrating its appearance as perfect propaganda tool for recruiting new members on the basis that the US is anti-Islam (Callimachi, 2017). Similarly, terrorists of various ideologies cite prejudice, discrimination, and victimization

[1] The Oklahoma City Bombing was perpetrated by extreme right-wing terrorist Timothy McVeigh (i.e., not a Muslim nor an Islamist).

as a factor that pushes them towards violent extremism (Horgan, 2014), and unsurprisingly Islamist terrorists consistently cite Islamophobia and worldwide persecution of Muslims as a justification for their use of terrorism (Abbas, 2012).

1.2.4 Testing the Relationship between Risk Perception for Terrorism and Islamophobia

In this study, Islamophobia will be measured using the Islamophobia, Affective-Behavioral scale (ISLAB; Lee et al., 2009; Lee et al., 2013), which most closely represents the accepted definition of Islamophobia. Building a body of evidence about the relationship between RPT and Islamophobia is a first step in developing effective intervention and prevention strategies to build resilience to the negative social effects of terrorism in the US. As such, the second primary aim of this project is to assess the relationship between RPT and Islamophobia. Drawing from the research discussed in this introduction, the specific research questions and hypotheses for this study are as follows:

Research Question 1: Do the results of a structural equation model (SEM) testing a one-factor model for the latent construct RPT support its validity when compared to a null model and an alternative four-factor model of RPT?

Hypothesis 1.a.: A one-factor model of RPT, in which twelve items measuring multiple facets of RPT will adequately represent one latent RPT factor.

Hypothesis 1.b.: A four-factor model of RPT, in which twelve items measuring multiple facets of RPT will adequately represent four types of RPT for each type of target (self, loved ones, average Americans, and the nation).

Research Question 2: Is risk perception for terrorism positively associated with Islamophobia?

Hypothesis 2: RPT will be positively associated with Islamophobia. That is, RPT's latent factor will have a significant, positive covariance with Islamophobia's latent factor in SEM.

2 METHODS

This study is envisioned as a first stage of research to better understand risk perceptions for terrorism (RPT), biases related to RPT, and how RPT may be related to negative responses to terrorism. This first step will measure RPT and its relationship with Islamophobia using online survey methods; specifically, a quantitative survey administered online via Qualtrics.

2.1 Sample Size and Participant Recruitment

For this study, the primary analysis was structural equation modeling, including confirmatory factor analysis (see Data Analysis). Previous research using similar methods indicates that sample sizes of between 150-300 are adequate for such analyses (Muthen & Muthen, 2012; Paxton, Curran, Bollen, Kirby, and Chen, 2001; Wolf, Harrington, Clark, & Miller, 2013). In order to ensure a large enough sample, a minimum sample size of 500 valid responses was solicited for this study.

The data for this study was collected through Qualtrics. Qualtrics is an online survey platform that enables researchers to efficiently gain access to representative samples, ensure participant anonymity, administer informed consent, survey measures, and debriefings, and distribute compensation to participants. Qualtrics provides a variety of options for participant recruitment; for this study, Qualtrics recruited a nationally representative sample of 512 people (i.e., participants who provided valid, error-free responses) from their partner network participant pool consisting of millions of users. Participants were randomly sampled from within these large pools, and the sampling was stratified to ensure that the sample represented the population of interest, adult US residents. Although this sampling method is not truly random, it simulates random sampling in some respects, yields representative samples, and is preferable to sampling via services like Amazon’s Mechanical Turk, which is known to yield biased samples (Burnham

& Piedmont, 2018). Participants were notified via email about the opportunity to participate in the study. In order to qualify, participants were required to be adults, aged 18 years and older, and residents of the US. Using demographic strata quotas from US Census data, Qualtrics recruited participants in such a way that the resulting sample approximately matched US Census results in terms of proportions of key demographic groupings, such as race, ethnicity, region, age, gender, and income (US Census, 2018). Table 3 in Results provides more details about participant demographics. Participants were also required to affirm a statement that they would provide honest answers to the survey items and also affirm they had read and understood the informed consent form before they could participate. There were also several attention-check items throughout the survey; if participants answered any of these items incorrectly, they were redirected to the end of the survey and their answers were not counted as valid responses. Qualtrics provided participants with non-monetary compensation for taking the survey through their panel partners, usually in the form of gift cards, air-miles, store credits, or similar tokens. Compensation value was approximately $4 per participant.

2.2 Procedure

The study took place online over a period of 17 days from early to mid-May of 2020. The study used a quantitative survey design and the total survey was relatively short, taking 15 to 20 minutes to complete. Participants first had to read and agree to an online informed consent form and confirm that they were over the age of 18, currently residing in the US, and committed to giving honest answers on the survey. If any of these conditions were not met, they were redirected to the end of the survey to be thanked and debriefed. The informed consent presented information about the study and included a mild deception to reduce the potential for response bias. Participants were told that the study was being conducted to research perceptions of

different types of “dangers”. After the informed consent, participants answered a series of demographic questions. Participants also completed a short form of the Social Desirability Scale (Strahan & Gerbassi, 1972) to assess trait likelihood of biasing their responses to improve their social desirability. The remaining items measured RPT and Islamophobia. Some survey sections, scales within sections, and items within scales were randomized across participants to reduce order effects. After completing the survey, participants were fully debriefed as to the true hypotheses and aims of the study. Finally, participants received their compensation via email from Qualtrics.

2.3 Measures

2.3.1 Risk Perceptions for Terrorism

Risk perceptions have been measured using many operationalizations; this survey incorporated multiple methods of risk perception measurement to improve construct validity by more comprehensively assessing multiple facets of RPT. There is a large literature on risk perception from social cognition research and its subfields, judgment and decision-making (JDM) and behavioral economics. Pioneering research by Slovic, Sjoberg, Lichtenstein, Fischoff, and other researchers has demonstrated that risk perception can be measured by recording quantitative judgments of the risk of harm from various hazards, such as activities, events, and technologies. Generally, risk perception researchers recommend continuous, rather than ordinal ratings of risk perception (e.g., “very low risk” to “extremely high risk”) because such measures lack variability and can be misleading because one category could subjectively be much larger than others (Sjoberg, 2000b). However, ordinal ratings have the advantage of having category labels for each level of their variable, which may make response options more easily understood. Established measurement methods include asking participants to estimate the risk of harm from a

single hazard of interest (Bruine de Bruin, Fischhoff, Brilliant, & Caruso, 2006; Fischhoff, Bruine de Bruin, Perrin, & Downs, 2004; Lichtenstein, Slovic, Fischoff, Layman, & Combs, 1978; Slovic, Fischoff, & Lichtenstein, 1981), by ranking level of relative risk for many hazards including the hazard of interest (Slovic, Fischoff, & Lichtenstein, 1985; Slovic, 1987), and by having participants rate how much money they would be willing to pay to avoid the hazard of interest (insurance payment; Sjoberg, 2000a; 2000b; Slovic, 1987). This survey will incorporate items that use each of these methods.

For the first measure, termed risk estimate (RE), participants were asked to estimate how much risk they believe terrorism poses to safety, specifically, risk of death. According to Sjoberg (2000b), asking people to rate perceived risk for a hazard has been found to be an effective and useful means of operationalizing risk perceptions, and researchers have used this strategy to measure RPT, specifically (Breckenridge et al., 2010; Fischhoff et al., 2004). Participants in this study were asked to estimate the risk terrorism poses to safety on a sliding scale from 0 (not risk at all) to 100 (An extremely high risk), with the added direction that a 50 out of 100 would indicates “a moderate risk” (see Table 1 for items). One advantage of this scaling RE items from 0 to 100, rather than an ordinal Likert scale is that it allows for higher variability in responses while still providing participants with clear anchors to interpret response options (Bruine de Bruin et al., 2006).

The second measure, termed risk ranking (RR), asked participants to rank ten deadly hazards, that is, ten hazards that can cause death, according to which they believe are most likely to cause death. In this study, *only* the rank participants assign to terrorism will be used as a measure of RPT and the rank assigned to other hazards will *not* be used (see Table 1, including the hazards to be included). It is important to note that, for these items, participants will rank the

items from 1 to 10, where the lower the rank, the more risk assigned. That is, if they were to rank terrorism in position 1 out of 10, this indicates their perception that terrorism is the most risky of the 10 hazards (i.e., it is "number one" in terms of risk, or the likelihood to cause death). Therefore, one would expect the factor loadings for these items to be negative. This is because, as the position number increases, perceived risk decreases, and therefore the negative loading suggests a negative linear association between the observed variables (risk ranking items) and the latent variable (RPT). Risk of death, specifically, is used because, as Slovic points out, risk is often considered in terms of the likelihood of fatality (1987; 2000). Actual rates of death for each of the hazards included is known. Hazards other than terrorism were chosen on the basis that they 1) have FREs that are higher than terrorism's (i.e., they are more likely to cause death than terrorism), 2) they are hazards most people would be familiar with, at the time of the survey, without additional explanation, and 3) they vary greatly in their risk of causing death (i.e., some are high risk and some are low risk). This method has been used across various samples and hazards (Fischhoff & Morgan, 2009; Slovic, Fischoff, & Lichtenstein, 1981; Slovic, Fischoff, & Lichtenstein, 1985; Slovic, 1987) and is useful because people tend to naturally compare the risks of various hazards relative to each other (e.g., "at least chewing tobacco is safer than smoking cigarettes"). Most studies do not use RR items to measures risk perception, and those that do typically only include RR items. An advantage of including RE items *and* RR items is that this RPT measure will capture perceived risk when people are considering terrorism alone *and* when considering terrorism relative to other hazards.

The third type of measure used in this study is an "expressed preference" measure of risk perception, which is particularly useful in capturing the subjective and personal nature of risk perception (Slovic, 1987). Expressed preferences measure risk perception by assessing the

lengths to which people will go to avoid a hazard. For instance, the expressed preference used in this study asks how much money you are willing to pay to be safe from a hazard and is thus termed risk insurance (RI; Slovic, 2000; Slovic, Fischhoff, & Lichtenstein, 1985; Slovic, Fischhoff, Lichtenstein, Corrigan, & Combs, 1977; Morgan, Slovic, Nair, Geisler, MacGregor, Fischhoff, Lincoln, & Florig, 1985). RI items in this study asked participants to state how many thousand dollars they would be willing to pay at the beginning of a year to guarantee safety from terrorism for that year (see Table 1 and Appendix A). Participants used a sliding scale from 0 to 100 and were told that units on this scale represented thousands of US dollars, such that "5 on the slider= $5,000."

Risk perception is an amalgam of risk perceptions for *multiple* relevant groups. That is, risk perception (as a psychological construct) is inherently multi-faceted, including perceptions of risk to the self, others (both familiar and unfamiliar to a person), and society in a general sense (Sjoberg, 2000a; Slovic, 2000). Which of these reference groups is most important for risk perception likely varies for each individual and it remains to be tested which of these is most impactful for risk perception on average (and this may vary from hazard to hazard). For each of the three measurement methods used in this study (RE, RR, and RI), participants estimated RPT using multiple reference groups; in this case, for themselves, loved ones, the average American, and the US as a nation. General versus personal risk is often differentiated in risk perception research (Sjoberg, 2000a) and previous research has specifically asked about risk for oneself, for the average American, and for risk to the nation, which tend to generate different risk perceptions (Breckenridge et al., 2010). Thus, twelve items (three measurement types by four reference groups) assessed RPT and structural equation modeling estimated a latent score to represent the overall construct of RPT (see Table 1). Four items used the "risk ranking"

paradigm, corresponding to risk for four reference points: self, loved ones, the average American, and the US as a nation. Another four items used the “risk estimate” paradigm, and the final four use expressed preferences: in this case, a “risk insurance” paradigm. See Table 1 below for items and see Appendix A for items as they appeared to participants in the online survey.

Table 1. Risk Perception for Terrorism (RPT) Items

RPT Items	Scale
Risk Estimate Items	
The questions below ask what you think about the risk of terrorism. On a scale where 0 means "No risk at all" and 100 means "An extremely large risk", please choose a number that best represents your response.	
Risk Estimate Self (RES) How much of a risk do you believe terrorism poses to your own personal safety? In other words, what is the risk of terrorism killing you, personally?	Slider from 0 (No risk at all) to 50 (Moderate risk) to 100 (An extremely large risk)
Risk Estimate Loved Ones (RELO) How much of a risk do you believe terrorism poses to the safety of your loved ones (family or close friends)? In other words, what is the risk of terrorism killing one of your loved ones?	Slider from 0 (No risk at all) to 50 (Moderate risk) to 100 (An extremely large risk)
Risk Estimate Average American (REAA) How much of a risk do you believe terrorism poses to the safety of a randomly selected American (other than you)? In other words, what is the risk of terrorism killing a randomly selected American?	Slider from 0 (No risk at all) to 50 (Moderate risk) to 100 (An extremely large risk)
Risk Estimate United States (REUS) How much of a risk do you believe terrorism poses to the safety of the United States as a nation? In other words, what is the risk of terrorism seriously harming the United States?	Slider from 0 (No risk at all) to 50 (Moderate risk) to 100 (An extremely large risk)
Risk Ranking Items	
Risk Ranking Self (RRS) Please rank the following sources of risk according to which you think are most likely to kill *you personally*, with the most risky item at the top and the least risky item at the bottom. Please use the drag and drop function to rank the following items, where the top position (1) represents the highest level of risk and 10 represents the lowest level of risk.	Numerical Rank (1-10) of Terrorism among: Caffeine overdose, Alcohol overdose, Mercury poisoning, Lightning strike, Homicide with a handgun, Car accident, Terrorism, COVID-19 (Coronavirus), Lead poisoning; Trampoline accident
Risk Ranking Loved Ones (RRLO) Please rank the following sources of risk according to which you think are most likely to kill one of your	Numerical Rank (1-10) of Terrorism among: Caffeine overdose, Alcohol overdose, Mercury

loved ones (family or close friends), with the most risky item at the top and the least risky item at the bottom. Please use the drag and drop function to rank the following items, where the top position (1) represents the highest level of risk and 10 represents the lowest level of risk.	poisoning, Lightning strike, Homicide with a handgun, Car accident, Terrorism, COVID-19 (Coronavirus), Lead poisoning; Trampoline accident
Risk Ranking Average American (RRAA) Please rank the following sources of risk according to which you think are most likely to kill a randomly selected American (other than you), with the most risky item at the top and the least risky item at the bottom. Please use the drag and drop function to rank the following items, where the top position (1) represents the highest level of risk and 10 represents the lowest level of risk.	Numerical Rank (1-10) of Terrorism among: Caffeine overdose, Alcohol overdose, Mercury poisoning, Lightning strike, Homicide with a handgun, Car accident, Terrorism, COVID-19 (Coronavirus), Lead poisoning; Trampoline accident
Risk Ranking United States (RRUS) Please rank the following sources of risk according to which you think are most likely to seriously harm the US as a nation, with the most risky item at the top and the least risky item at the bottom. Please use the drag and drop function to rank the following items, where the top position (1) represents the highest level of risk and 10 represents the lowest level of risk.	Numerical Rank (1-10) of Terrorism among: Caffeine overdose, Alcohol overdose, Mercury poisoning, Lightning strike, Homicide with a handgun, Car accident, Terrorism, COVID-19 (Coronavirus), Lead poisoning; Trampoline accident

Risk Insurance Items

The questions below ask how much money you would be willing to pay to avoid the risk of terrorism. On a scale from 0 to 100, where each number represents that many thousand dollars (for example, 5 on the scale means $5,000), please choose a number that best represents your response.

Risk Insurance Self (RIS) Please indicate the US dollar amount that you would be willing to pay this year in order to guarantee that *you personally* were safe from terrorism for this year	Slider from 0 to 100, with instruction: "Amount in thousands of US dollars (e.g., 5 on the slider= $5,000)"
Risk Insurance Loved Ones (RILO) Please indicate the US dollar amount that you would be willing to pay this year in order to guarantee that *your loved ones (family and close friends)* were safe from terrorism for this year	Slider from 0 to 100, with instruction: "Amount in thousands of US dollars (e.g., 5 on the slider= $5,000)"
Risk Insurance Average American (RIAA) Please indicate the US dollar amount that you would be willing to pay this year in order to guarantee that *a randomly selected American (other than you)* was safe from terrorism for this year	Slider from 0 to 100, with instruction: "Amount in thousands of US dollars (e.g., 5 on the slider= $5,000)"
Risk Insurance United States (RIUS) Please indicate the US dollar amount that you would be	Slider from 0 to 100, with instruction:

willing to pay this year in order to guarantee that *the United States, as a nation* was safe from terrorism for this year	"Amount in thousands of US dollars (e.g., 5 on the slider= $5,000)"

2.3.2 Islamophobia

To measure RPT effectively, one must account for the context of RPT in contemporary American society. In the US, Islamophobia is one of the negative byproducts of exposure to terrorism and perceptions of terrorism are closely related to perceptions of Muslims (Kearns et al., 2019). It is therefore important to measure the relationship between RPT and Islamophobia, which is the unreasonable fear of Islam and Muslims and associated attitudes and behaviors (Ciftci, 2012; Lee et al., 2009; 2013; Zimmerman, 2008). Although there is extensive research measuring *experiences* of Islamophobia (Gardner & Selod, 2015; Kunst, Sam, & Ulleberg, 2012; Samari et al., 2018) there is less research aimed at understanding and measuring *expressed* Islamophobia, although evidence-based measures do exist (Lee et al., 2009; Lee et al., 2013).

As Lee and colleagues (2009; 2013) discuss, few scales have been developed to measure Islamophobia. Perhaps part of the reason why so few other scales exist is because Lee et al.'s Islamophobia Scale is comprehensive and empirically-backed; as such, it has become the *de facto* measure of Islamophobia. Prior to Lee at al.'s Islamophobia Scale, Islamophobic attitudes were conflated with anti-Arab or Anti-Middle Eastern prejudice, which is problematic since Islam is not a racial or ethnic group (e.g., a large proportion of Muslims in Western countries are actually Southeast Asians; Lee et al., 2009; Poynting & Mason, 2007). Researchers maintain that the following attitudes and beliefs are key in conceptualizing Islamophobia: that Islam is monolithic and regressive, that it is fundamentally different and "other" from Western ideologies, and that it is inherently threatening, violent, and conducive to terrorism (Ciftci, 2012; Lee et al., 2009; Runnymede Trust, 1997).

Researchers who study Islamophobia emphasize that because Islamophobia is the unreasonable fear of Islam and of Muslims, Islamophobia also includes the beliefs that one

should avoid Muslims and that any interactions with Muslims will be uncomfortable at best and dangerous at worst (Ciftci, 2012; Lee et al., 2009; Zimmerman, 2008). Given these considerations, Islamophobia in this study is measured and represented by the eight-item Islamophobia, Affective-Behavioral scale (ISLAB), which most closely matches the accepted conceptual definition of Islamophobia and has been thoroughly tested and supported as a psychometric (see Table 2 for items; Lee et al., 2009; Lee et al., 2013). See Table 2 for items and Appendix A for items as they appeared to participants.

Table 2. Islamophobia, Affective-Behavioral (ISLAB) Items

ISLAB Items	Scale
ISLAB1 I would support any policy that would stop the building of new mosques (Muslim place of worship) in the U.S.	7-point Likert: Strongly disagree (1) to Strongly agree (7)
ISLAB2 If possible, I would avoid going to places where Muslims would be.	7-point Likert: Strongly disagree (1) to Strongly agree (7)
ISLAB3 I would become extremely uncomfortable speaking with a Muslim.	7-point Likert: Strongly disagree (1) to Strongly agree (7)
ISLAB4 Just to be safe, it is important to stay away from places where Muslims could be.	7-point Likert: Strongly disagree (1) to Strongly agree (7)
ISLAB5 I dread the thought of having a teacher or professor that is Muslim.	7-point Likert: Strongly disagree (1) to Strongly agree (7)
ISLAB6 If I could, I would avoid contact with Muslims.	7-point Likert: Strongly disagree (1) to Strongly agree (7)
ISLAB7 If I could, I would live in a place where there were no Muslims.	7-point Likert: Strongly disagree (1) to Strongly agree (7)
ISLAB8 Muslims should not be allowed to work in places where many Americans gather such as airports.	7-point Likert: Strongly disagree (1) to Strongly agree (7)

2.4 Data Analysis

The contract set with Qualtrics for this project required them to provide 500 or more responses that were "good completes"; participants who failed any attention checks, did not answer all questions, or who straightlined (i.e., answering 10 or more questions with the same response, indicating they were not earnestly completing the survey), were not considered "good completes" and did not count towards the total participants Qualtrics had promised. Therefore, at the time that final survey data was downloaded from Qualtrics, there were no invalid responses in the data. Following download, the data was thoroughly inspected and it was confirmed that all 512 responses downloaded were valid responses with no detectable errors. Though the data was reorganized during the data cleaning process, no participants were removed.

Once data was downloaded and cleaned, the next step was to obtain descriptive statistics and inter-item correlations. All statistical analyses were conducted using the the statistical software program R (R Core Team, 2020). First, I used descriptive statistics, along with histograms and frequency distribution tables, to assess the normality of the data. I found that the distributions for ISLAB items were positively skewed, but that other primary study variables had relatively normal distributions (see Table 4 in Results). I then calculated inter-item correlations, which gave insight as to the relationships between items within the same measures, as well as across measures (see Table 5 in Results).

For the primary analysis, I used structural equation modeling (SEM) to test 1) the structural relationship between measured RPT items and a latent RPT variable, 2) the structural relationship between measured ISLAB items and a latent Islamophobia variable, and 3) the relationship between the latent RPT variable and the latent Islamophobia variable. Specifically, confirmatory factor analysis (CFA), was especially useful for this study because it allows for the

testing of *a priori* models; that is, testing a model in which the structure for the relationships between variables is based on existing theory and previous research. Simply put, CFA allows one to test if expected relationships actually fit with data that has been collected. This was appropriate for testing the measurement models for RPT and Islamophobia, which were based on previous research. This method of analysis is especially advantageous for scale creation because it estimates latent variables (i.e., the RPT latent variable) from measured variables (i.e., variables we can directly observe, like each of the twelve RPT items). Using SEM made it possible to include multiple CFAs, and thereby to estimate multiple latent variables (RPT and Islamophobia), while also accounting for the relationship between RPT and Islamophobia, and to do so all in one model.

SEM analysis provides results that indicate how well the model being tested fits the sample data via statistics known as fit indices. There are several types of fit indices. Assessing multiple fit indices is optimal to understanding whole-model goodness-of-fit, as different indices are calculated differently and provide different information about model fit (Kenny, 2020; Kline, 2015). To determine if models tested in this study showed good fit, fit indices were observed. Some of the most used widely indices to assess the goodness-of-fit are the χ^2, CFI, RMSEA, and SRMR (Kenny, 2020; Kline, 2015). χ^2 assesses model fit by assessing the difference between the sample data's covariance matrix and the model's covariance matrix. Though it is almost ubiquitously reported in SEM, χ^2 results are strongly affected by sample size, such that χ^2 values for models with large sample sizes (i.e., 300 or more participants) tend to be severely inflated and may not be reliable fit indicators for such models (or at least should be assessed in tandem with other indices; Kline, 2015). Most researchers advocate using multiple fit indicators to understand fit more comprehensively, rather than relying on a single indicator (Kenny, 2020).

The CFI assesses the difference between the sample data and the model while adjusting for sample size. As such, CFI may be an especially appropriate barometer of model fit for models in this study, which has a large sample (Kenny, 2020; Kline, 2015; Taasoobshirazi & Wang, 2016). RMSEA assesses model fit by assessing the difference between the model covariance matrix and the population covariance matrix (Kenny, 2020; Kenny, Kaniskan, & McCoach, 2014; Kline, 2015). The SRMR is the square root of the difference between the residuals of the sample data covariance matrix and model covariance matrix (Kenny, 2020; Taasoobshirazi & Wang, 2016).

The first proposed model (Model 1; see Figure 1 below) included twelve RPT items loading onto one latent factor representing RPT and eight ISLAB items loading onto one latent Islamophobia factor. This model made use of the trait-method approach (aka., bifactor approach) to CFA, which allowed the model to control for covariance shared by each of the items within a particular method of measurement for RPT (i.e., risk estimates, risk rankings, and risk insurance). This model was most likely to fit based on theory for several reasons. Model 1's structure is based on the conceptual definition of RPT, which includes perceptions for risk at the absolute, relative, and decision-making levels (Bruine de Bruin et al., 2006; Fischhoff et al., 2004). Model 1's structure, which is tested in this analysis, assesses perceived risk of terrorism when it is considered as the only hazard of interest, when it considered relative to the risk for many hazards including the hazard of interest, and when participants consider risk in the real world and how risk perceptions are related to broader JDM processes (Lichtenstein et al., 1978; Slovic et al., 1985). The items are organized in a specific way, according to multiple methods, to ensure that entirety of the construct is measured in this model (Slovic et al., 1981; Slovic, 2000). The discrepancy between the different types of measures is accounted for by estimating latent factors for each of the methods. This is an effective way to control for the variance that may be

shared between the items of one method type, but not for others. Previous research indicates that these methods are quite different from each other in how they are measuring RPT (Slovic, 1987), and that by accounting for these multiple facets in Model 1 and controlling their shared variance using the trait-method approach, we might expect a better model fit and a more accurate means of measuring RPT (Sjoberg, 2000a; 2000b; Slovic, 1987). In addition, Model 1 includes one factor for RPT because risk perceptions are presented in the literature as globally calculated estimates of risk (Sjoberg, 2000a; 2000b; Slovic, 2000). Model 1's structure is based on the empirically-supported theory that people tend to make judgments about risk in a holistic and comprehensive way (i.e., the whole is greater than the sum of its parts), that is, they hold one unified risk perception related to a hazard, rather than many separate risk perceptions for a hazard based on who might be affected and through what modality they are considering the risk (Sjoberg, 2000a; Slovic 1987; 2000). As such, Model 1's basis comes directly from previous research on risk perception, though because RPT has never been carefully measured, this structure remains experimental and in need of testing in the present study.

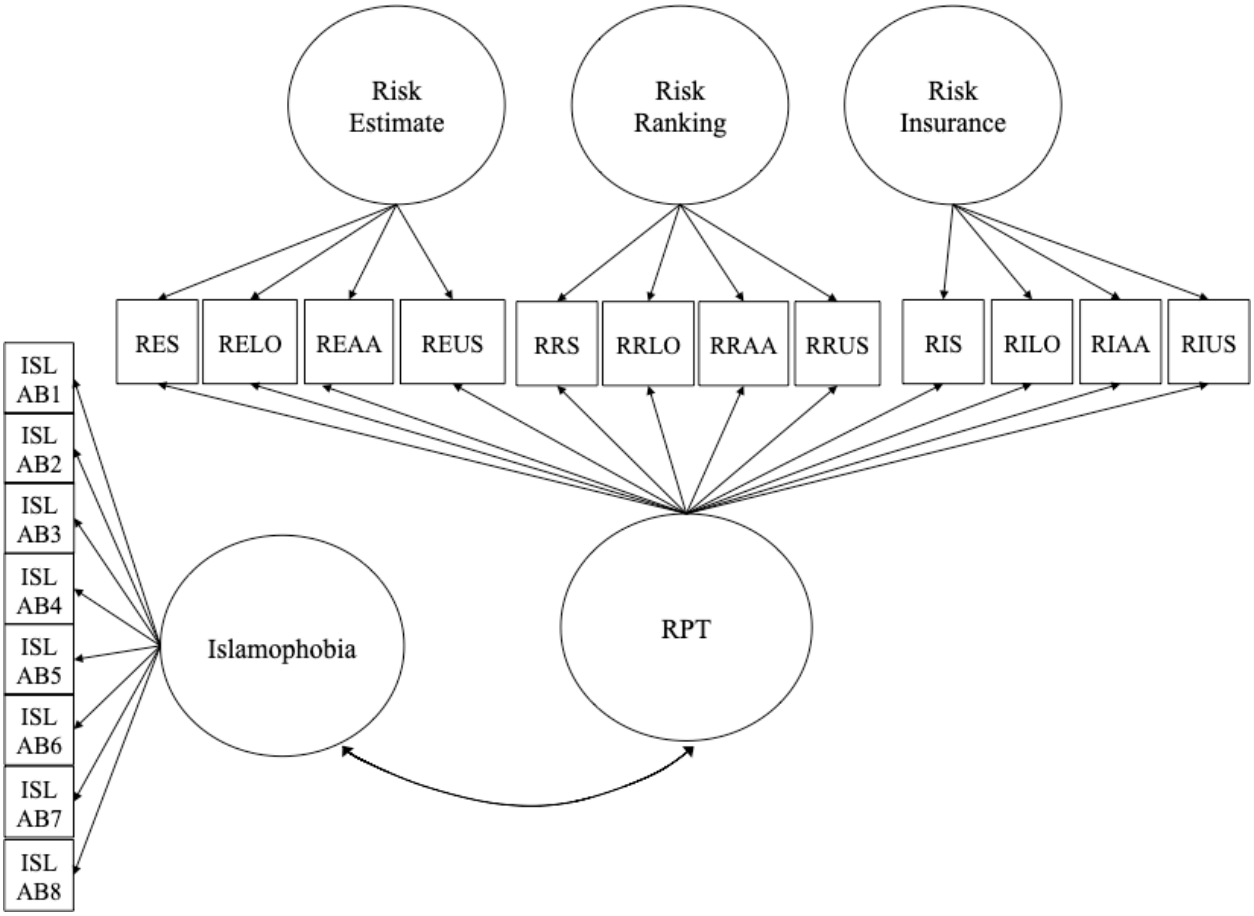

Figure 1. Structural Equation Model for the One-Factor Solution (Model 1)

Note: For visual simplicity, the paths depicted in the model are factor loadings and covariances. Latent factors in the figure above have their intercepts fixed at 0 and their variances fixed at 1, whereas intercepts and variances for indicators were freely estimated. No covariances were estimated between RPT method factors (estimates, rankings, and factors).

The alternative proposed model (Model 2) also used a trait-method approach and comprised twelve RPT indicators, but these loaded onto multiple latent RPT factors representing RPT for the self, RPT for loved ones, RPT for the average American, and RPT for the US as a nation (see Figure 2 below). Like Model 1, covariances between RPT method factors (estimates, ranking, and insurance) were not estimated in Model 2, but covariances between RPT trait factors (self, loved ones, average American, and the US) were estimated. Therefore structurally, Model 2 represents a different conceptualization of RPT. Instead of presenting RPT as one global factor, which is how it risk perception tends to be presented in the literature, it tests the idea that there may be more than one construct at work when measuring RPT an that these separate constructs are based on reference group. It was important to estimate covariances between RPT trait factors for two reasons. Model 2 needed to account for shared variance between these factors, which all measure the same general construct (RPT). Also, estimating covariances between RPT trait factors allows the model to estimate covariances between Islamophobia and each of these RPT trait factors while more accurately controlling for the influence of the other RPT trait factors.

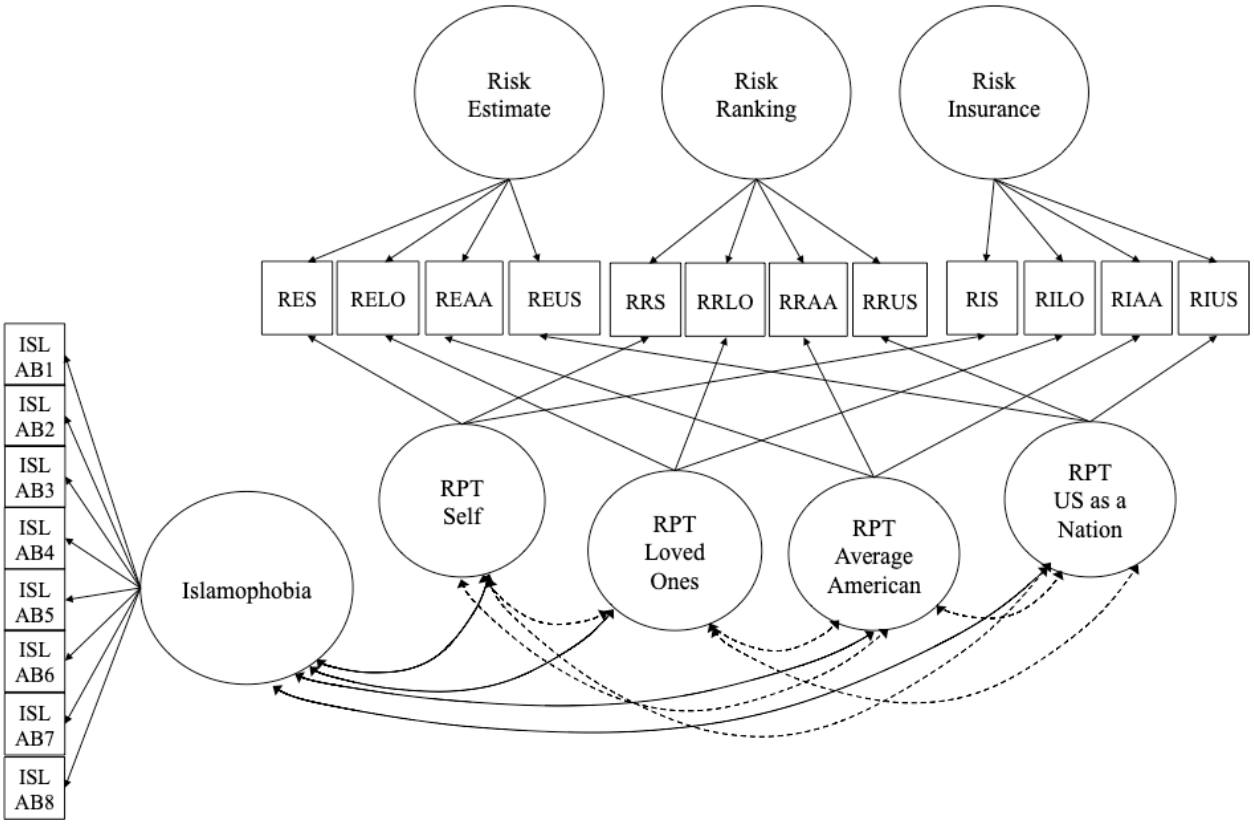

Figure 2. Structural Equation Model for the Four-Factor Solution (Model 2)

Note: For visual simplicity, the only parameters depicted in the model are factor loadings and covariances. Covariances between RPT trait factors (Self, Loved Ones, Average American, and US) are depicted with dotted lines for the sake of clarity. Latent factors in the figure above have their intercepts fixed at 0 and their variances fixed at 1, whereas intercepts and variances for indicators were freely estimated. No covariances were estimated between RPT method factors (estimates, rankings, and factors).

If Model 1 (in which RPT items load onto a single latent RPT factor) showed better model fit than Model 2, this would indicate that RPT is best conceptualized as one construct, rather than multiple, separate constructs based on reference group. If Model 2 (in which RPT items load onto multiple RPT factors) showed better fit than Model 1, this would indicate that RPT is not necessarily one construct, but multiple constructs dependent on the reference group that would be at risk for harm from terrorism. Whichever model showed best model fit would also provide information on the relationship (in the form of covariance) between RPT and Islamophobia, addressing research question 2.

Descriptive statistics indicated ISLAB items should be treated as ordinal variables, which I accounted for in the proposed models (see Descriptive Statistics and Assumption Testing). In R, running SEM using the lavaan package (Rosseel, 2012), I used the command "ordered" in my models for ISLAB items (see R code in Appendix B). For this command, R defaults to an ordered probit regression, which allows for the interpretation of ordinal, non-discrete (aka., non-interval) variables by generating thresholds for each ordinal response category. When the "ordered" command is used in R, the model changes from maximum likelihood (ML) to the weighted least squares mean- and variance-adjusted estimator (WLSMV) to fit the model. The WLSMV estimator uses diagonally weighted least squares (DWLS) to estimate the model, which does not assume the normal distribution for all variables (Muthén & Asparouhov, 2002), but it still uses the full weight matrix to give robust standard errors and an adjusted χ^2 test statistic (Rosseel, 2012).

In order to determine which model was ultimately the best structure to use for measuring RPT, Islamophobia, and their covariance, I compared model fit statistics for the two best-fitting models. In addition, I conducted a nested model comparison (see Results). However, because not

all of the measures in these models were continuous, additional considerations needed to be made for this comparison. Specifically, a Satorra-Bentler correction was made to appropriately scale the Chi-Squared statistics used to compare model fit for non-normal data (Satorra & Bentler, 1994; 2001).

3 RESULTS

3.1 Sample Demographics

The sample's (N=512) demographic proportions were roughly representative of US data (US Census, 2018; see Table 1 below). Table 1 includes counts and proportions of categorical and ordinal demographic variables.

Table 3. Demographics for Study Participants (N=512)

Variable	Levels				
	Male	Female	Transgender	Other	
Gender	243 (47.5%)	268 (52.3%)	1 (0.20)	0 (0.0%)	
	Hispanic/Latinx	Arab or Middle Eastern	Neither	Both	
Ethnicity	91 (17.8%)	6 (1.2%)	404 (78.9%)	11 (2.2%)	
	White/Caucasian	Black/African-American	Native American	Asian, Indian, or Pacific Islander	Other
Race*	371 (70.7%)	78 (14.9%)	19 (3.6%)	38 (7.2%)	19 (3.6%)
	Less than high school	High School/GED	Associate's Degree	Bachelor's Degree	Graduate Degree
Education	9 (1.8%)	174 (34.0%)	129 (25.2%)	97 (19.0%)	103 (20.1%)

Note: Proportions in parentheses.
*Indicates a collectively exhaustive item, i.e., participants could choose multiple options

3.2 Descriptive Statistics and Assumption Testing

Table 4 below provides information on central tendency, variability, and normality for the key variables analyzed in this study. Mean scores for risk estimate items (RE) ranged from 39.83 to 58.44; participants' mean risk estimates were lowest when considering risk to self and highest when considering risk to the nation. Mean scores for risk ranking items (RR) ranged from 3.72 to 5.12 (the lower the numerical ranking, the *higher* the risk); participants ranked terrorism as being a greater source of risk when considering risk to the US as a nation than when considering risk to self and the average American. This is because, as the position number for the rankings increases, perceived risk decreases. Mean scores for risk insurance items (RI) ranged from 27.34 to 31.26; participants were willing to spend the least money to be safe from the risk of terrorism when considering the risk to themselves and the most money when considering risk to their loved ones. For the ISLAB items, means ranged from a low of 2.58 (item: "I would be extremely uncomfortable speaking with a Muslim") to a high of 3.19 (item: "I would oppose the building of new mosques in the US"). Medians (mentioned because ISLAB items were positively skewed) ranged from 2 to 3. On average across ISLAB items, 18.17% of participants selected either "Somewhat agree" (6.69%), "Agree" (5.84%), or "Strongly agree" (5.64%). That is, approximately 18% of people agreed with the ISLAB items, which are Islamophobic statements.

Descriptive statistics indicated that ISLAB items had non-normal distributions, specifically, high skewness values. This is to be potentially expected due to the nature of the variable; high levels of Islamophobia (and especially of *reported* Islamophobia) are likely to be uncommon in the general US population (Lee et al., 2013). Therefore, one might expect these items to be positively skewed. To further examine the skewness and kurtosis for all variables, I generated frequency distributions and histograms. I also calculated skewness ratios (i.e., skew

index divided by its standard error) and kurtosis ratios (i.e., kurtosis index divided by its standard error) to detect substantial skewness or kurtosis. Kline (2015) suggests that skewness ratio values higher than ±3.0 indicate concerning levels of skewness and that kurtosis ratio values higher than ±10.0 indicate concerning levels of kurtosis (Kline, 2015). By these standards, risk estimate, risk ranking, and risk insurance items did not exhibit substantial skewness or kurtosis and appeared roughly normal in histograms (with the exception of one item, RRUS, which was positively skewed). Because RPT items had generally normal distributions and are on scales of 0 to 100, 1 to 10, and 0 to 100 for risk estimates, rankings, and insurance, respectively, they were treated as continuous in the primary analyses. However, all of the items of the Islamophobia scale exhibited severe positive skew. In addition, the Islamophobia scale is an ordinal Likert scale measure with only seven response options. As such, ISLAB items were treated as ordinal, rather than continuous, in the primary analysis. To better analyze the data with these ordinal variables included, I used a weighted least squares with mean- and variance-adjusted (WLSMV) estimator. For R code used in primary analyses, please see Appendix B.

Table 4. Descriptive Statistics for Study Variables

Variable	Mean	SD	Median	Min	Max	Skewness	Kurtosis	SE	Skew /SE	Kurtosis /SE
RES	39.83	31.98	37	0	100	0.46	-0.98	1.41	0.33	-0.70
RELO	40.49	32.66	35	0	100	0.45	-1.07	1.44	0.31	-0.74
REAA	50.55	31.28	50	0	100	0.05	-1.17	1.38	0.04	-0.85
REUS	58.44	30.63	58	0	100	-0.23	-1.08	1.35	-0.17	-0.80
RRS	5.03	2.68	5	1	10	0.25	-1.04	0.12	2.08	-8.67
RRLO	5.12	2.76	5	1	10	0.32	-1.05	0.12	2.67	-8.75
RRAA	5.01	2.77	5	1	10	0.34	-1.06	0.12	2.83	-8.83
RRUS	3.72	2.64	3	1	10	0.94	-0.27	0.12	7.83	-2.25
RIS	27.34	30.41	10	0	100	0.96	-0.25	1.40	0.69	-0.18
RILO	31.26	32.26	19	0	100	0.81	-0.63	1.50	0.54	-0.42
RIAA	29.39	32.41	14	0	100	0.89	-0.53	1.48	0.60	-0.36
RIUS	31.23	31.82	20	0	100	0.78	-0.64	1.47	0.53	-0.44
ISLAB1	3.19	2.02	3	1	7	0.46	-1.04	0.09	5.11	-11.56
ISLAB2	3.1	1.93	3	1	7	0.52	-0.9	0.09	5.78	-10.00
ISLAB3	2.58	1.71	2	1	7	0.93	-0.07	0.08	11.63	-0.88
ISLAB4	2.84	1.82	2	1	7	0.73	-0.49	0.08	9.13	-6.13
ISLAB5	2.63	1.75	2	1	7	0.87	-0.2	0.08	10.88	-2.50
ISLAB6	2.74	1.8	2	1	7	0.76	-0.49	0.08	9.50	-6.13
ISLAB7	2.97	1.91	2.5	1	7	0.63	-0.75	0.08	7.88	-9.38
ISLAB8	2.6	1.78	2	1	7	0.95	-0.12	0.08	11.88	-1.50

3.3 Inter-Item Correlations

To gain a clearer understanding of the relationships between study variables prior to testing the measurement model, I assessed bivariate correlations between items (see Table 5 below). There were strong, positive correlations between the risk estimate items, ranging from 0.59 (RES and REUS) to 0.89 (RES and RELO). There were also strong, positive correlations between risk ranking items, ranging from 0.28 (RRS and RRUS) to 0.60 (RRS and RRLO). Likewise, there were strong, positive correlations among risk insurance items, ranging from 0.82 (RIS and RIUS) to 0.90 (RIAA and RIUS). There were significant, moderate correlations between risk estimate and risk ranking items, ranging from -0.18 (RES and RRUS) to -0.36 (RES and RRS), and between risk estimate and risk insurance items, ranging from 0.26 (REUS and RIS) to 0.46 (RES and RIS). Between risk ranking items and risk insurance items, correlations were weak overall, ranging from non-significant relationships (RRUS and RIUS) to weak, but significant, relationships (-0.14; RRS and RIAA). Relationships between RPT items of different measurement types were strongest between risk estimates and risk insurance items and weakest between risk ranking and risk insurance items. Overall, relationships among RPT items across measures tended to be stronger with items that measured risk to self and weaker with items that measured risk perceptions for the US as a nation.

ISLAB items had strong, positive correlations with each other, ranging from 0.60 (ISLAB1 and ISLAB3) to 0.82 (ISLAB2 and ISLAB4). Most of the ISLAB items were significantly correlated with risk estimate items, ranging from 0.09 (REUS andISLAB1) to 0.20 (RES and ISLAB5). A handful of correlations between ISLAB items and risk ranking items were significant: most of these were between RRLO and ISLAB items, likeISLAB1 (-0.12) and ISLAB7 (-0.15). A negative correlation is expected here, as a lower risk ranking score indicates

greater risk perception for terrorism, whereas a higher Islamophobia score indicates greater Islamophobia. Similarly, a handful of correlations between ISLAB items and risk insurance items were significant: most of these were between ISLAB5 and risk insurance items, like RIS (0.15) and RIAA (0.11). These results suggest that Islamophobia may have stronger relationships with RPT risk estimate items than with RPT risk ranking items or RPT risk insurance items.

Table 5. Inter-Item Correlations for Study Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. RES	-																			
2. RELO	.89**	-																		
3. REAA	.76**	.75**	-																	
4. REUS	.59**	.63**	.75**	-																
5. RRS	-.36**	-.36**	-.30**	-.28**	-															
6. RRLO	-.33**	-.33**	-.29**	-.27**	.60**	-														
7. RRAA	-.31**	-.29**	-.30**	-.35**	.57**	.50**	-													
8. RRUS	-.18**	-.18**	-.23**	-.28**	.28**	.35**	.42**	-												
9. RIS	.46**	.40**	.43**	.26**	-0.09	-.10*	-.12*	-0.05	-											
10. RILO	.44**	.39**	.39**	.28**	-.13**	-.09*	-.12*	-0.03	.86**	-										
11. RIAA	.45**	.42**	.40**	.29**	-.14**	-.14**	-.12*	-0.03	.84**	.84**	-									
12. RIUS	.38**	.38**	.35**	.28**	-.11*	-0.09	-0.09	-0.03	.82**	.87**	.90**	-								
13.ISLAB1	.14**	.12**	.14**	.09*	-0.06	-.12**	-0.04	-0.02	0.07	0.02	0.04	0.02	-							
14.ISLAB1	.14**	.13**	.11**	0.07	-0.07	-0.08	-0.06	0.00	0.02	-0.01	-0.02	-0.02	.75**	-						
15. ISLAB3	.14**	.12**	.12**	0.08	-0.08	-0.06	-0.04	0.04	0.08	0.05	0.09	0.06	.60**	.76**	-					
16. ISLAB4	.19**	.18**	.18**	.10*	-0.06	-.09*	-0.05	-0.03	.11*	0.08	.09*	0.07	.68**	.82**	.78**	-				
17. ISLAB5	.20**	.18**	.17**	.09*	-.12**	-0.08	-0.08	-0.01	.15**	.12*	.11*	0.07	.64**	.71**	.73**	.76**	-			
18. ISLAB6	.15**	.13**	.12**	0.08	-0.06	-0.08	-0.04	0.01	0.05	0.05	0.05	0.04	.66**	.77**	.78**	.82**	.76**	-		
19. ISLAB7	.17**	.15**	.17**	.11*	-0.09	-.15**	-0.08	-0.07	0.07	0.07	0.06	0.06	.68**	.73**	.68**	.78**	.73**	.83**	-	
20. ISLAB8	.12**	.11**	.09*	0.07	-.10*	-.13**	-0.08	-0.05	0.05	0.01	0.03	0.03	.65**	.73**	.69**	.73**	.69**	.78**	.76**	-

Note. * indicates $p < .05$. ** indicates $p < .01$.

Abbreviations: RE- Risk Estimate, RR- Risk Ranking, RI- Risk Insurance, S- Self, LO- Loved Ones, AA- Average American, US- United States, ISLAB- Islamophobia, Affective-Behavioral scale

3.4 Models Tested

3.4.1 Model 1

The proposed model for this study (Model 1) used a trait-method approach, in which all twelve items loaded onto one latent factor for RPT, with the covariance for items of different types of methods (i.e., measuring using estimates, rankings, and insurance items) measured by estimating three latent factors for the three different methods (see Figure 1 in Methods). This model also included the ISLAB items, which loaded onto one Islamophobia latent factor, and the covariance between this Islamophobia and RPT.

The test of this model indicated good fit to the data, $\chi^2(158)= 203.90$ $p= 0.008$, CFI= 1.00, SRMR= 0.04, RMSEA= 0.03 (90% CI= 0.01, 0.04). In either case, according to the CFI, Model 1 shows very good fit. Because CFI adjusts for sample size, this may be an especially useful indicator to go by for this model (Kenny, 2020; Kline, 2015). For the SRMR, values of 0.08 or less are considered indicative of good fit (Hu & Bentler, 1999; Hooper et al., 2008; Taasoobshirazi & Wang, 2016). The SRMR value for Model 1 is well below this cut-point. For the RMSEA, values of 0.08 or less are also the accepted standard for good model fit (Hooper et al., 2008; Hu & Bentler, 1999). The RMSEA for Model 1 is below this value and, furthermore, its upper confidence interval does not cross this threshold (upper CI= 0.04), which provides additional evidence that Model 1 has good model fit. Like the CFI, RMSEA is an especially meaningful fit indicator for models with large sample sizes, like Model 1 (Kenny, Kaniskan, & McCoach, 2014; Taasoobshirazi & Wang, 2016). Taken together, these indices show Model 1 fits well with the sample data.

All tested RPT items had significant factor loadings for the latent RPT factor (see Table 6 below). This indicates that all RPT items were generally related to each other, that these items

measure the same underlying construct (RPT), and that all RPT items meaningfully contribute to the measurement of RPT as a construct. Among risk estimate items, standardized factor loadings for the RPT factor were strongest for RES, which measured perceived risk to self (0.97), and weakest for REUS, which measured perceived risk to the US as a nation (0.69). A similar pattern of factor loadings for the RPT factor appeared for the risk ranking items, with RRS having the strongest loading and RRUS having the weakest loading. As expected, risk ranking factor loadings were negative. This is because, as the position number increases, perceived risk decreases, and therefore the negative loading suggests a negative linear association between the observed variables (risk ranking items) and the latent variable (RPT). Among risk insurance items factor loading strength for the RPT factor was similar across reference group. In general, the standardized loadings for the RPT factor for risk estimate items were stronger than those of risk insurance items, and those of risk insurance items were stronger than those of risk ranking items (i.e., for RPT factor loadings RE> RI> RR). See Discussion for substantive interpretations of the findings reported in Results.

Factor loadings for method factors, that is, for the latent factors for each type of RPT measurement (Risk estimates, Risk rankings, and Risk insurance) were all significant except for two. Of the risk estimate items, two (RES and REUS) had significant factor loadings for the RPT Risk Estimates factor and two (RELO and REAA) did not. This indicates that there may be low covariance between some risk estimate items. It is possible that REUS had a disruptive effect on this factor, as it has the weakest correlations with other risk estimate items, has a larger intercept, and had a much larger variance than other items. All risk ranking items had significant factor loadings for the latent RPT risk ranking factor and all risk insurance items had significant factor

loadings for the RPT risk insurance factor. This indicates that risk ranking items covary with one another and measure the same underlying factor; the same applies to risk insurance items.

RPT had a significant and positive, but relatively weak, relationship with Islamophobia ($\psi = 0.21$, $p < 0.001$). Although this study was not designed to test the measurement validity of the Islamophobia scale, which has been tested extensively (Lee et al., 2009; 2013), it is worth mentioning that all ISLAB items had significant factor loadings for the latent Islamophobia factor, which indicates that they all meaningfully contribute to the measurement of the Islamophobia as a construct. In addition, nearly all the thresholds for ISLAB items were significant with the exception of threshold 2. Across many of the ISLAB items, threshold 2 was not significant (see Table 6, under "Thresholds"), which indicates that in this sample there may not be a significant difference between responding to some ISLAB items with "Disagree" (response option 2) versus "Somewhat disagree" (response option 3; see Discussion).

Table 6. Model 1 Parameters with Standard Errors and Standardized Estimates

Relationship/Variable		Estimate	SE	Z-Value	*p*	Standardized Estimate
Factor Loadings						
RPT Risk Estimates by						
	RES	-7.34	3.74	-1.96	0.050	-0.24
	RELO	-2.02	4.68	-0.43	0.665	-0.06
	REAA	12.99	6.96	1.87	0.062	0.42
	REUS	10.23	3.65	2.80	0.005	0.34
RPT Risk Rankings by						
	RRS	1.70	0.15	11.39	0.000	0.65
	RRLO	1.79	0.17	10.84	0.000	0.66
	RRAA	1.87	0.17	11.08	0.000	0.68
	RRUS	1.04	0.16	6.41	0.000	0.39
RPT Risk Insurance by						
	RIS	23.64	1.44	16.46	0.000	0.80
	RILO	26.27	1.64	16.03	0.000	0.84
	RIAA	25.75	1.52	16.91	0.000	0.84
	RIUS	26.85	1.64	16.35	0.000	0.85
RPT by						
	RES	30.12	1.99	15.12	0.000	0.97
	RELO	29.62	2.53	11.70	0.000	0.93
	REAA	26.72	2.59	10.31	0.000	0.87
	REUS	20.74	2.63	7.90	0.000	0.69
	RRS	-0.91	0.16	-5.89	0.000	-0.35
	RRLO	-0.95	0.17	-5.70	0.000	-0.35
	RRAA	-0.88	0.17	-5.28	0.000	-0.32
	RRUS	-0.42	0.16	-2.63	0.001	-0.16
	RIS	12.31	1.83	6.73	0.000	0.42
	RILO	12.17	2.00	6.08	0.000	0.39
	RIAA	13.34	1.94	6.88	0.000	0.43
	RIUS	11.95	1.97	6.07	0.000	0.38
Islamophobia by						
	ISL1	0.83	0.02	52.00	0.000	0.83
	ISL2	0.91	0.01	105.06	0.000	0.91
	ISL3	0.87	0.01	68.24	0.000	0.87
	ISL4	0.93	0.01	119.24	0.000	0.93
	ISL5	0.88	0.01	76.11	0.000	0.88
	ISL6	0.94	0.01	125.83	0.000	0.94
	ISL7	0.91	0.01	98.56	0.000	0.91
	ISL8	0.89	0.01	72.58	0.000	0.89
Covariances						

RPT with						
	Islamophobia	0.21	0.05	4.26	0.000	0.21
Intercepts						
	RPT Risk Estimates	0.00	-	-	-	0.00
	RPT Risk Rankings	0.00	-	-	-	0.00
	RPT Risk Insurance	0.00	-	-	-	0.00
	Islamophobia	0.00	-	-	-	0.00
	RPT	0.00	-	-	-	0.00
	RES	38.22	1.71	22.42	0.000	1.24
	RELO	39.63	1.76	22.56	0.000	1.25
	REAA	48.74	1.51	32.25	0.000	1.58
	REUS	57.08	1.50	38.05	0.000	1.89
	RRS	5.09	0.13	38.50	0.000	1.93
	RRLO	5.15	0.14	36.72	0.000	1.89
	RRAA	5.03	0.14	35.46	0.000	1.84
	RRUS	3.78	0.18	21.50	0.000	1.44
	RIS	26.14	2.14	12.21	0.000	0.88
	RILO	30.26	2.14	14.17	0.000	0.96
	RIAA	27.06	2.30	11.79	0.000	0.91
	RIUS	30.69	2.09	14.65	0.000	0.99
Thresholds						
	ISL1/T1	-0.44	0.06	-6.94	0.000	-0.44
	ISL1/T2	-0.06	0.06	-0.93	0.355	-0.06
	ISL1/T3	0.10	0.06	1.70	0.088	0.10
	ISL1/T4	0.68	0.07	10.17	0.000	0.68
	ISL1/T5	0.95	0.07	13.14	0.000	0.95
	ISL1/T6	1.34	0.09	15.59	0.000	1.34
	ISL2/T1	-0.52	0.06	-8.09	0.000	-0.52
	ISL2/T2	-0.10	0.06	-1.70	0.088	-0.10
	ISL2/T3	0.20	0.06	3.16	0.002	0.20
	ISL2/T4	0.75	0.07	11.00	0.000	0.75
	ISL2/T5	1.07	0.08	14.12	0.000	1.07
	ISL2/T6	1.43	0.09	15.84	0.000	1.43
	ISL3/T1	-0.32	0.06	-5.10	0.000	-0.32
	ISL3/T2	0.21	0.06	3.45	0.001	0.21
	ISL3/T3	0.58	0.07	8.94	0.000	0.58
	ISL3/T4	1.12	0.08	14.50	0.000	1.12
	ISL3/T5	1.42	0.09	15.81	0.000	1.42
	ISL3/T6	1.80	0.12	15.64	0.000	1.80
	ISL4/T1	-0.43	0.06	-6.74	0.000	-0.43
	ISL4/T2	0.06	0.06	1.02	0.307	0.06
	ISL4/T3	0.34	0.06	5.39	0.000	0.34

ISL4/T4	0.94	0.07	13.05	0.000	0.94
ISL4/T5	1.26	0.08	15.25	0.000	1.26
ISL4/T6	1.65	0.10	15.95	0.000	1.65
ISL5/T1	-0.32	0.06	-5.20	0.000	-0.32
ISL5/T2	0.16	0.06	2.68	0.007	0.16
ISL5/T3	0.47	0.06	7.32	0.000	0.47
ISL5/T4	1.11	0.08	14.43	0.000	1.11
ISL5/T5	1.43	0.09	15.84	0.000	1.43
ISL5/T6	1.72	0.11	15.84	0.000	1.72
ISL6/T1	-0.31	0.06	-5.01	0.000	-0.31
ISL6/T2	0.13	0.06	2.09	0.036	0.13
ISL6/T3	0.43	0.06	6.74	0.000	0.43
ISL6/T4	1.00	0.07	13.56	0.000	1.00
ISL6/T5	1.33	0.09	15.54	0.000	1.33
ISL6/T6	1.75	0.11	15.79	0.000	1.75
ISL7/T1	-0.42	0.06	-6.65	0.000	-0.42
ISL7/T2	0.03	0.06	0.44	0.661	0.03
ISL7/T3	0.26	0.06	4.23	0.000	0.26
ISL7/T4	0.82	0.07	11.82	0.000	0.82
ISL7/T5	1.12	0.08	14.50	0.000	1.12
ISL7/T6	1.45	0.09	15.87	0.000	1.45
ISL8/T1	-0.25	0.06	-4.04	0.000	-0.25
ISL8/T2	0.23	0.06	3.65	0.000	0.23
ISL8/T3	0.58	0.07	8.85	0.000	0.58
ISL8/T4	1.07	0.08	14.12	0.000	1.07
ISL8/T5	1.33	0.09	15.54	0.000	1.33
ISL8/T6	1.69	0.11	15.89	0.000	1.69
Residual Variances					
RPT Risk Estimates	1.00	-	-	-	1.00
RPT Risk Rankings	1.00	-	-	-	1.00
RPT Risk Insurance	1.00	-	-	-	1.00
Islamophobia	1.00	-	-	-	1.00
RPT	1.00	-	-	-	1.00
RES	0.00	-	-	-	0.00
RELO	128.83	86.99	1.48	0.000	0.13
REAA	65.16	184.37	0.35	0.000	0.07
REUS	376.15	119.26	3.15	0.000	0.41
RRS	3.23	0.28	11.42	0.000	0.46
RRLO	3.33	0.30	11.31	0.000	0.45
RRAA	3.22	0.28	11.40	0.000	0.43
RRUS	5.65	0.53	10.69	0.000	0.82
RIS	165.17	5.09	32.46	0.000	0.19

RILO	150.29	5.22	28.80	0.000	0.15
RIAA	109.65	3.27	33.54	0.000	0.12
RIUS	126.20	4.48	28.17	0.000	0.13
ISL1	1.00	-	-	-	0.31
ISL2	1.00	-	-	-	0.17
ISL3	1.00	-	-	-	0.24
ISL4	1.00	-	-	-	0.14
ISL5	1.00	-	-	-	0.22
ISL6	1.00	-	-	-	0.12
ISL7	1.00	-	-	-	0.17
ISL8	1.00	-	-	-	0.22

Abbreviations: RE- Risk Estimate, RR- Risk Ranking, RI- Risk Insurance, S- Self, LO- Loved Ones, AA- Average American, US- United States, ISLAB- Islamophobia, Affective-Behavioral scale

3.4.2 Model 2

An alternative model for this study was also proposed and tested (Model 2). Like Model 1, Model 2 also used a trait-method approach (see model details in Data Analysis), but RPT items loaded onto four latent factors for RPT based on reference group (i.e., self, loved ones, average American, and US as a nation), rather than one comprehensive RPT factor. As in Model 1, the covariance for items of different types of methods (i.e., measuring using estimates, rankings, and insurance items) was measured by estimating three latent factors for the three different methods (see Figure 2 in Methods). Covariances between the different RPT factors (i.e., between RPT self, loved ones, average American, and US as a nation) were also freely estimated in this model. ISLAB items loaded onto one Islamophobia latent factor, and the covariances between this Islamophobia factor and the four RPT factors were estimated.

The test of Model 2 indicated good fit to the data, $\chi^2(149)= 192.74$ $p= 0.009$, CFI=1.00, SRMR=0.04, RMSEA=0.03 (90% CI = 0.01, 0.04). Factor loadings for RPT items for the latent RPT self factor were significant, as were loadings for all RPT items for the other latent RPT factors: RPT for loved ones, RPT for average American, and RPT for the US as a nation (see Table 7 below). For each of these latent RPT factors, the standardized loadings for risk estimate items were stronger than those of risk insurance items, and those of risk insurance items were stronger than those of risk ranking items (i.e., for RPT factor loadings RE> RI> RR). Covariances between the four RPT factors were significant and positive. In addition, as was the case in Model 1, item factor loadings for method factors (Risk estimates, Risk rankings, and Risk insurance) were all significant, with the exception of RELO and REAA. ISLAB items behaved similarly in Model 2 as they had behaved in Model 1: all ISLAB significantly loaded onto the

latent Islamophobia factor and nearly all the thresholds for ISLAB items were significant, with the exception of threshold 2 across several ISLAB items.

All relationships between Islamophobia and each of the four RPT factors were significant and positive, though some were stronger than others. Specifically, the relationships between RPT for individuals and Islamphobia were stronger than the relationship between RPT for the US and Islamophobia. That is, the relationships between Islamophobia and RPT for self ($\psi = 0.22$, $p < 0.001$), RPT for loved ones ($\psi = 0.23$, $p < 0.001$), and RPT for the average American ($\psi = 0.22$, $p < 0.001$) were stronger than the relationships between Islamophobia and RPT for the US ($\psi = 0.15$, $p = 0.015$).

Table 7. Model 2 Parameters with Standard Errors and Standardized Estimates

Relationship/Variable	Estimate	SE	Z-Value	*p*	Standardized Estimate
Factor Loadings					
RPT Risk Estimates by					
RES	-8.21	4.01	-2.05	0.040	-0.27
RELO	-1.07	4.78	-0.22	0.823	-0.03
REAA	9.66	5.50	1.76	0.079	0.31
REUS	8.36	3.56	2.35	0.019	0.28
RPT Risk Rankings by					
RRS	1.70	0.15	11.40	0.000	0.65
RRLO	1.79	0.17	10.82	0.000	0.66
RRAA	1.87	0.17	11.06	0.000	0.68
RRUS	1.03	0.16	6.40	0.000	0.39
RPT Risk Insurance by					
RIS	23.75	1.43	16.56	0.000	0.80
RILO	26.40	1.64	16.06	0.000	0.84
RIAA	25.70	1.54	16.71	0.000	0.83
RIUS	26.89	1.63	16.54	0.000	0.86
RPT Self by					
RES	29.92	2.09	14.30	0.000	0.96
RRS	-0.92	0.16	-5.90	0.000	-0.35
RIS	12.28	1.85	6.64	0.000	0.42
RPT Loved Ones by					
RELO	29.00	2.76	10.52	0.000	0.91
RRLO	-0.95	0.17	-5.79	0.000	-0.35
RILO	11.98	1.98	6.06	0.000	0.38
RPT Avg American by					
REAA	26.38	2.58	10.23	0.000	0.86
RRAA	-0.88	0.16	-5.33	0.000	-0.32
RIAA	13.08	1.90	6.89	0.000	0.42
RPT US by					
REUS	23.56	2.80	8.41	0.000	0.78
RRUS	-0.47	0.17	-2.81	0.005	-0.18
RIUS	12.90	1.95	6.63	0.000	0.41
Islamophobia by					
ISL1	0.83	0.02	52.00	0.000	0.83
ISL2	0.91	0.01	105.08	0.000	0.91
ISL3	0.87	0.01	68.25	0.000	0.87
ISL4	0.93	0.01	119.25	0.000	0.93
ISL5	0.88	0.01	76.13	0.000	0.88
ISL6	0.94	0.01	125.85	0.000	0.94

	ISL7	0.91	0.01	98.55	0.000	0.91
	ISL8	0.89	0.01	72.56	0.000	0.89
Covariances						
Islamophobia with						
	RPT Self	0.22	0.05	4.34	0.000	0.22
	RPT Loved Ones	0.23	0.05	4.27	0.000	0.23
	RPT Avg American	0.22	0.06	4.04	0.000	0.22
	RPT US	0.15	0.06	2.42	0.015	0.15
RPT Self with						
	RPT Loved Ones	1.02	0.03	38.74	0.000	1.02
	RPT Avg American	1.01	0.03	38.97	0.000	1.01
	RPT US	0.87	0.04	20.06	0.000	0.87
RPT Loved Ones with						
	RPT Avg American	0.99	0.03	30.54	0.000	0.99
	RPT US	0.91	0.05	19.81	0.000	0.91
RPT Avg American with						
	RPT US	0.98	0.04	24.34	0.000	0.98
Intercepts						
	RPT Risk Estimates	0.00	-	-	-	0.00
	RPT Risk Rankings	0.00	-	-	-	0.00
	RPT Risk Insurance	0.00	-	-	-	0.00
	Islamophobia	0.00	-	-	-	0.00
	RPT Self	0.00	-	-	-	0.00
	RPT Loved Ones	0.00	-	-	-	0.00
	RPT Avg American	0.00	-	-	-	0.00
	RPT US	0.00	-	-	-	0.00
	RES	38.22	1.71	22.42	0.000	1.24
	RELO	39.63	1.76	22.56	0.000	1.25
	REAA	48.74	1.51	32.25	0.000	1.58
	REUS	57.08	1.50	38.05	0.000	1.89
	RRS	5.09	0.13	38.50	0.000	1.93
	RRLO	5.15	0.14	36.72	0.000	1.89
	RRAA	5.03	0.14	35.46	0.000	1.84
	RRUS	3.78	0.18	21.50	0.000	1.44
	RIS	26.14	2.14	12.21	0.000	0.88
	RILO	30.26	2.14	14.17	0.000	0.96
	RIAA	27.06	2.30	11.79	0.000	0.91
	RIUS	30.69	2.09	14.65	0.000	0.99
Thresholds						
	ISL1/T1	-0.44	0.06	-6.94	0.000	-0.44
	ISL1/T2	-0.06	0.06	-0.93	0.355	-0.06

ISL1/T3	0.10	0.06	1.70	0.088	0.10
ISL1/T4	0.68	0.07	10.17	0.000	0.68
ISL1/T5	0.95	0.07	13.14	0.000	0.95
ISL1/T6	1.34	0.09	15.59	0.000	1.34
ISL2/T1	-0.52	0.06	-8.09	0.000	-0.52
ISL2/T2	-0.10	0.06	-1.70	0.088	-0.10
ISL2/T3	0.20	0.06	3.16	0.002	0.20
ISL2/T4	0.75	0.07	11.00	0.000	0.75
ISL2/T5	1.07	0.08	14.12	0.000	1.07
ISL2/T6	1.43	0.09	15.84	0.000	1.43
ISL3/T1	-0.32	0.06	-5.10	0.000	-0.32
ISL3/T2	0.21	0.06	3.45	0.001	0.21
ISL3/T3	0.58	0.07	8.94	0.000	0.58
ISL3/T4	1.12	0.08	14.50	0.000	1.12
ISL3/T5	1.42	0.09	15.81	0.000	1.42
ISL3/T6	1.80	0.12	15.64	0.000	1.80
ISL4/T1	-0.43	0.06	-6.74	0.000	-0.43
ISL4/T2	0.06	0.06	1.02	0.307	0.06
ISL4/T3	0.34	0.06	5.39	0.000	0.34
ISL4/T4	0.94	0.07	13.05	0.000	0.94
ISL4/T5	1.26	0.08	15.25	0.000	1.26
ISL4/T6	1.65	0.10	15.95	0.000	1.65
ISL5/T1	-0.32	0.06	-5.20	0.000	-0.32
ISL5/T2	0.16	0.06	2.68	0.007	0.16
ISL5/T3	0.47	0.06	7.32	0.000	0.47
ISL5/T4	1.11	0.08	14.43	0.000	1.11
ISL5/T5	1.43	0.09	15.84	0.000	1.43
ISL5/T6	1.72	0.11	15.84	0.000	1.72
ISL6/T1	-0.31	0.06	-5.01	0.000	-0.31
ISL6/T2	0.13	0.06	2.09	0.036	0.13
ISL6/T3	0.43	0.06	6.74	0.000	0.43
ISL6/T4	1.00	0.07	13.56	0.000	1.00
ISL6/T5	1.33	0.09	15.54	0.000	1.33
ISL6/T6	1.75	0.11	15.79	0.000	1.75
ISL7/T1	-0.42	0.06	-6.65	0.000	-0.42
ISL7/T2	0.03	0.06	0.44	0.661	0.03
ISL7/T3	0.26	0.06	4.23	0.000	0.26
ISL7/T4	0.82	0.07	11.82	0.000	0.82
ISL7/T5	1.12	0.08	14.50	0.000	1.12
ISL7/T6	1.45	0.09	15.87	0.000	1.45
ISL8/T1	-0.25	0.06	-4.04	0.000	-0.25
ISL8/T2	0.23	0.06	3.65	0.000	0.23
ISL8/T3	0.58	0.07	8.85	0.000	0.58

	ISL8/T4	1.07	0.08	14.12	0.000	1.07
	ISL8/T5	1.33	0.09	15.54	0.000	1.33
	ISL8/T6	1.69	0.11	15.89	0.000	1.69
Residual Variances						
	RPT Risk Estimates	1.00	-	-	-	1.00
	RPT Risk Rankings	1.00	-	-	-	1.00
	RPT Risk Insurance	1.00	-	-	-	1.00
	Islamophobia	1.00	-	-	-	1.00
	RPT Self	1.00	-	-	-	1.00
	RPT Loved Ones	1.00	-	-	-	1.00
	RPT Avg American	1.00	-	-	-	1.00
	RPT US	1.00	-	-	-	1.00
	RES	0.00	-	-	-	0.00
	RELO	167.94	95.73	1.75	0.079	0.13
	REAA	159.06	128.10	1.24	0.214	0.07
	REUS	286.16	102.67	2.79	0.005	0.41
	RRS	3.22	0.29	11.28	0.000	0.46
	RRLO	3.32	0.30	11.16	0.000	0.45
	RRAA	3.25	0.29	11.29	0.000	0.43
	RRUS	5.62	0.52	10.75	0.000	0.82
	RIS	160.79	7.72	20.83	0.000	0.19
	RILO	147.89	9.43	15.68	0.000	0.15
	RIAA	118.69	8.00	14.83	0.000	0.12
	RIUS	100.19	11.82	8.48	0.000	0.13
	ISL1	1.00	-	-	-	0.31
	ISL2	1.00	-	-	-	0.17
	ISL3	1.00	-	-	-	0.24
	ISL4	1.00	-	-	-	0.14
	ISL5	1.00	-	-	-	0.22
	ISL6	1.00	-	-	-	0.12
	ISL7	1.00	-	-	-	0.17
	ISL8	1.00	-	-	-	0.22

Abbreviations: RE- Risk Estimate, RR- Risk Ranking, RI- Risk Insurance, S- Self, LO- Loved Ones, AA- Average American, US- United States, ISLAB- Islamophobia, Affective-Behavioral scale

3.4.3 Comparing Models 1 and 2

Both Model 1 and Model 2 show strong goodness-of-fit to the sample data (see Table 8 below). However, their fit statistics were very similar and did not clearly indicate which was the better-fitting model. In order to determine whether either Model 1 or Model 2 was a significantly better-fitting model, I conducted a nested model comparison using a a Satorra-Bentler correction (Satorra & Bentler, 1994; 2001; see Table 9 below). See Appendix C for data elements and parameters for Models 1 and 2.

Table 8. Goodness-of-Fit Statistics for Models 1 and 2

Fit Indices	$\chi 2$	$\chi 2$ *p*-value	CFI	RMSEA	SRMR
Model 1	203.74	0.007	1.0	0.03	0.04
Model 2	192.90	0.008	1.0	0.03	0.04

Table 9. Nested Comparison between Models 1 and 2

Nested Model Comparison: Scaled Chi-Squared Difference Test, Satorra-Bentler Correction	$\chi 2$	$\chi 2$ difference	*p*-value
Model 1	139.47		
		10.71	0.296
Model 2	132.82		

The results of this comparison indicate that there is no significant difference between the corrected $\chi 2$ values for Models 1 and 2, which demonstrates that it cannot be concluded that either model is a better fit than the other. Because these models are equivalent in their goodness-of-fit, but Model 1 is more parsimonious, it is the better model. In addition, Model 1 is more theoretically sound, as risk perception is conceptualized as a general, holistic construct, rather than as multiple component parts (see Data Analysis and Discussion). Marsh et al. (2004) caution against assessing models based purely on goodness-of-fit statistics, but to also evaluate model fit based on other statistical values in the results, as well as theoretical considerations relevant to the context of the study. Taking all of this into consideration, there are multiple reasons to conclude that Model 1 is the most appropriate structure for measuring RPT, Islamophobia, and their relationship. As such, it is reasonable to conclude that RPT is best measured and conceptualized as one single construct rather than multiple constructs for different reference groups, at least until more research is conducted.

4 DISCUSSION

The current study was designed to determine if 1) a novel measure of risk perception for terrorism could be established with good model fit and 2) if risk perceptions for terrorism were positively related to Islamophobia. The results indicate that both of these aims were met. Specifically, the hypothesis that SEM results would support the validity of a model of RPT (Model 1) was upheld. In addition, I hypothesized that RPT would be significantly and positively associated with Islamophobia; this hypothesis was also supported.

4.1 Research Question 1: Measuring RPT and Islamophobia

4.1.1 Measuring RPT

One of the primary goals of this study was to develop a measurement model for RPT that also included and accounted for Islamophobia, as these variables were likely to be related based on theory. Model 1 provides an evidence-based measure for RPT that may be further tested and used in future research. In addition, the results of this study provide information about the level and nature of RPT in the US, including evidence that RPT is overestimated.

4.1.1.1 Interpreting RPT Descriptive Statistics

Descriptive statistics for each of the twelve RPT items provided insight into how people in the US perceive terrorism's risk. Risk estimates indicate that participants tend to view terrorism as a moderate risk to safety. On a scale from 0 to 100 in which 0 was labeled, "No risk at all", 50 was labeled as "Moderate risk", and 100 was labeled "An extremely large risk" (see Appendix A for items as they appeared to participants), participants estimated terrorism's risk of causing death to themselves or loved ones to be around 40 out of 100, terrorism's risk of causing death to a randomly selected American to be around 50 out of 100, and terrorism's risk of

seriously harming the US as a nation at nearly 60 out of 100. Formal risk estimates (FREs) for any given American being killed by terrorism, on this 0-100 scale, are somewhere between 0 and 1 (Nowrasteh, 2016; START, 2017). Though this study did not explicitly hypothesize that Americans' actual RPT scores would be larger than FREs for terrorism's risk, nor did it include any inferential test for this effect, this finding indicates that Americans overestimate RPT for individuals (whether self, loved ones, or the average American). As for terrorism's risk to the nation, there is likely no way to estimate the "true value" of the risk to the US as a nation using FREs and therefore no way to even speculate as to how this value might compare to REUS scores in this sample.

The pattern of means for risk estimate items across reference groups (self, loved ones, others, and US) is consistent with previous research for risk estimates, as well as other areas of research. For instance, the just world fallacy states that people tend to think bad things are more likely to happen to others, rather than to themselves or their loved ones (Lerner, 1980). Similarly, risk perception researchers have observed that, across many different hazards, people tend to estimate risk as lower for themselves than for unknown others (Slovic, 2000). In the current study, just as in past studies, people gave lower risk estimates when considering risk to themselves and their loved ones than to others. It is more psychologically uncomfortable to consider risk to oneself or loved ones, especially for a risk as unpleasant as death by terrorism, than to an unknown, faceless other. The fact that participants in this study estimated higher RPT for others and lower RPT for themselves and loved ones is consistent with longstanding JDM and risk perception theory, which states that people are often unable to think objectively about risk (Slovic, Finucane, Peters, & MacGregor, 2004; Slovic, 1987; 1997).

The descriptive statistics for risk ranking items demonstrated that, when considering risk of terrorism to individuals (self, loved ones, average American, and US), participants tended to rank terrorism as posing the fifth highest risk out of the ten hazards. When considering risk of terrorism to the US as a nation, participants ranked terrorism as posing the third or fourth highest risk (mean rank= 3.75, median rank= 3). In order of greatest perceived risk to lowest perceived risk, participants (on average and by median rank) ranked the ten hazards (see Table 1) as follows: COVID-19 was first, car accident was second, homicide with a gun was third, terrorism was fourth, alcohol overdose was fifth, mercury poisoning was sixth, lead poisoning was seventh, lightning strike was eighth, caffeine overdose was ninth, and trampoline accidents was tenth. What is interesting is that, though participants ranked five hazards as being less risky (in terms of potential to cause death) than terrorism, *all hazards listed* (other than terrorism) are mathematically deadlier than terrorism (i.e., the FREs for these hazards are far higher; CDC, 2015). According to FREs, participants *should* have ranked terrorism as the tenth out of ten when considering the risk it poses to individuals (RRS, RRLO, and RRAA). Instead, even though far more Americans die each year from alcohol overdose, mercury poisoning, and even caffeine overdose than from terrorism, participants perceived terrorism as a bigger risk. It seems participants did not accurately assess the risk terrorism poses in comparison to other hazards; instead, they greatly overestimated its relative risk. This could be because many of the other hazards participants were asked to rank have a more mundane public image. Terrorism is shocking and malicious in a way that more "naturally" occurring hazards participants were asked to rank, like car accidents and lead poisoning, are not. Even the hazards that are violent and malicious, like homicide with a gun, are considered (sadly) commonplace and routine (Wallace, 2020) in comparison with terrorism. In addition, they also do not hold the ideological and

existential threat that terrorism does. This result is also unsurprising as research shows perceived risks for extreme and unpredictable hazards, like terrorism, tend to be overestimated (Gigerenzer, 2004; Lichtenstein, Slovic, Fischhoff, Layman, & Combs, 1978; Slovic, 1987).

The descriptive statistics for risk insurance items are also informative. For these items, the amount of money people were willing to pay to *avoid* the risk of terrorism was fairly similar across reference groups. Whether considering risk to self, loved ones, the average American, and even the US as a nation, participants were willing to pay around $30,000 on average to be safe from terrorism for one year. Though it was beyond the scope of this study to test for significant differences between these means, the fact that there is little *practical* difference in the amount participants were willing to pay to keep their loved ones safe from terrorism ($29, 260, the lowest RI mean) versus to keep a randomly selected American safe from terrorism ($31, 390, the highest RI mean) is both surprising and interesting. This finding is difficult to interpret in light of past risk perception research, as there are relatively few studies that have used risk insurance paradigms (though there are some; Slovic et al., 1985; Slovic et al., 1977; Morgan et al., 1985). In general, people care more for themselves and their loved ones than for an unknown other, and are therefore willing to pay more for them to be safe (Slovic, 1992; 2000). However, one might also expect people to pay more for others in line with the just world fallacy (i.e., the belief that terrorism is more likely to happen to someone else, so they need the insurance more; Lerner, 1980). It is possible that these two expectations have balanced each other out to create similar means across reference groups, but this is entirely speculative. In any case, this finding supports the notion that people think about risk differently when considering expressed preferences rather than estimating risk itself (Slovic, 1987; 2000; Slovic & Weber, 2002). That is, expressed preferences, like how much money one would pay to avoid a risk, may be a different way of

considering risk than estimating risk itself (whether in an absolute sense, i.e., risk estimate items or relative to other risks, i.e., risk ranking items) because it is further "down-stream" in the decision-making process. That is, though expressed preferences, do *express* one's perceptions of risk, they likely are a step further along in the decision-making process, reflecting what one ought to do with their risk perceptions (i.e., how much money to pay to avoid the perceived risk). In this way expressed preferences, such as the risk insurance RPT items used in this study, do measure how people perceive risk, but in a way that also captures an additional facet of risk perception not addressed by absolute or relative estimates (Slovic, 1987; 2000; Slovic & Weber, 2002). It should not be surprising, perhaps, to see a different pattern of findings across reference group for risk insurance than was found for risk estimates and risk rankings.

Considering the descriptive statistics across all RPT items, there is evidence that our sample perceived terrorism's risk to be *different* than available formal risk estimates for terrorism. This aligns with decades of research demonstrating that people perceive risks posed by hazards inaccurately (Kahneman, Slovic, & Tversky, 1982; Slovic, 1987) and that FREs are often so different from peoples' actual risk perceptions that people tend to mistrust FREs (Slovic, 1993). The present results provide initial evidence of a phenomenon which some scholars have assumed to exist (Gigerenzer, 2004; Marshall et al., 2007; Slovic & Peters, 2006; Sunstein, 2003), but had yet to be empirically established: that American public's risk perception for terrorism is far greater than FREs for terrorism. Although this may not be surprising based on previous research, it is empirically novel nonetheless. Future research, perhaps with the data from this study, should conduct inferential tests to determine if these exploratory, descriptive findings can be more fully substantiated in the form of population differences between RPT (i.e., individual RPT items, RPT subscales, and RPT latent scores) and formal risk estimates.

That RPT appears to be quite far removed from FREs for terrorism has multiple implications. First, it supports the theory that risk perceptions are subjective and that risk perceptions for any hazard are likely to differ from its FREs. It then provides support that this is not only true for RPT, but also that RPT may be especially biased (in this case, overestimated). This aligns with several areas of established research. Terrorism is not an average hazard; it possesses "dread" (Slovic, 1987) qualities that are known to create inflated risk perceptions: it is catastrophic (Slovic & Peters, 2006), very harmful (i.e., it can kill many people at once; Sunstein, 2003), poorly understood (Gigerenzer, 2004), infrequent (Slovic, 1987), and unpredictable (Gigerenzer, 2004). All of this leads to "probability neglect" for terrorism: people forget that terrorist attacks are incredibly unlikely to occur because they are too preoccupied about how frightening terrorist attacks are (Sunstein, 2003). That RPT appears to be greater than FREs for terrorism also suggests that the availability and affect heuristics are at work, though additional research will need to be conducted to establish this connection. Previous research has determined that when people are highly exposed to a hazard, as is known to be the case with terrorism (Jenkin, 2006; Marshall et al. 2007; Mueller, 2006; Sunstein, 2003), that they are more likely to overestimate that hazard's risk (Lichtenstein et al., 1978). Therefore it is plausible that the availability heuristic contributes to the overestimation of RPT found in this study's sample. Perceptions of terrorism are also known to be influenced by the affect heuristic (Lerner & Keltner, 2000; 2001). For Americans, terrorism has a specific emotional connection: in the wake of 9/11 and throughout the War on Terror, terrorism became interwoven with images and narratives of American patriotism, unity, and military prowess. Strong, emotional responses to terrorism were commonplace in the early 2000s (Huddy, Feldman, Taber, & Lahav, 2005; Sinclair & Antonius, 2012) and have since carried social and cultural meaning: strong responses

to terrorism signal patriotism and questioning such responses has social repercussions (Mueller, 2006). Researchers have already established the connection between affect and responses to terrorism (Breckenridge et al., 2010; Lerner, Gonzalez, Small, & Fischoff, 2003), and the fact that RPT is overestimated in this sample may be partly explained by the affect heuristic.

4.1.1.2 Interpreting SEM Results for RPT

Fit indices for the final model, Model 1, supporting the validity of its use as a reasonable measure of a latent RPT construct. In addition, each of the RPT items in Model 1 had significant factor loadings for the latent construct RPT, which suggests that each item makes an important contribution to the model. This finding further provides further empirical support for Model 1's validity as a measure of RPT. The results of this study indicate the present scale can be used to measure RPT in future research.

Observing the parameters for Model 1 gives insight into how participants perceive the risk of terrorism. Though factor loadings for all RPT items were significant, standardized factor loadings were stronger for risk estimate items than for risk ranking items and risk insurance items (see Table 6). It appears that RPT, as a latent construct, is more strongly represented by items measuring absolute estimates of RPT (risk estimates) rather than relative estimates of RPT (risk ranking) or by expressed preferences regarding avoidance of RPT (risk insurance). This indicates that RPT may be driven more by general perceptions of terrorism rather than by perceptions of terrorism relative to other hazards or by desire to avoid terrorism's risk. However, Model 1's good fit to the data, as well as the significant factor loadings for risk ranking and risk insurance items indicates that all RPT items are valuable for measuring RPT in spite of risk estimate items' relative importance. Model 1 incorporates multiple facets of RPT as it is conceptually defined, including its relative and expressed components. That such a model

showed good fit to the data suggests that RPT, and perhaps risk perception more generally, is multi-faceted as a construct and should be measured comprehensively. However, future research should directly compare model fit between Model 1 (which includes risk estimate, risk ranking, and risk insurance items) and a one-dimensional model of RPT with risk estimates items only.

Interestingly, standardized factor loadings for RPT items measuring risk to the US as a nation were low compared to items measuring risk to other reference groups. Though this present finding is novel and requires further testing, the idea that RPT may be more driven by Americans' perceptions of risk to individuals (self, loved ones, and the average American), rather than risk to the US as a nation is at odds with some of the prevailing speculations as to why Americans react so strongly to terrorism. Some scholars have theorized that reactions to terrorism may be overblown because many Americans believe terrorism is an important threat to national security (Mueller, 2006; Mueller & Stewart, 2012). Others contend that responses to terrorism are driven by group-level threat, such as existential and symbolic threats, that also manifest in the form of national security concerns (Sinclair & Antonius, 2012; Stephan & Stephan, 2013). Risk perceptions are socially constructed and closely tied with group and national identity (Joffe, 2003; Yardley, 1997), which further suggests that items measuring risk to the US should strongly reflect latent RPT. For instance, US cultural norms are associated with Americans' reduced perceptions of risks associated with gun ownership (Kleck, Kovandzic, Saber, & Hauser, 2011) and climate change (Kahan, Wittlin, Peters, et al., 2011). In light of the fact that risk perceptions are considered to be culturally and group-bound, it is surprising that, in our sample, risk to individuals had a stronger relation with latent RPT. That individual risk perceptions may more strongly drive overall RPT does build on some previous research that suggests that individualism has an important influence on risk perception, particularly in the US

(a highly individualistic culture) and among conservatives (who value individualism and personal responsibility; Dake & Wildavsky, 1991; Kahan, Braman, Gastil, Slovic, & Mertz, 2007). Future research focusing on better understanding RPT for individuals and for groups (e.g., one's nation) may be informative for understanding how risk communication for terrorism can be optimally structured.

4.1.2 Measuring Islamophobia

4.1.2.1 Interpreting Islamophobia Descriptive Statistics

Means and medians for the ISLAB items were all between 2 or 3.5 on a 7-point Likert scale, which correspond to the responses "Disagree" and "Strongly Disagree", respectively. In general, then, participants tended to disagree (but not strongly disagree) with the statements in the scale, all of which are examples of Islamophobia (see Table 2). The items which participants tended to *agree* with most were "I would support any policy that would stop the building of new mosques (Muslim place of worship) in the U.S." and "If possible, I would avoid going to places where Muslims would be." The items participants tended to *disagree* with most were "I would become extremely uncomfortable speaking with a Muslim" and "Muslims should not be allowed to work in places where many Americans gather such as airports." The fact that approximately 18% of participants tended to agree with ISLAB statements (on average, across statements) indicates that there may be many Americans (18% of the US population is approximately 60 million people) who are Islamophobic to some extent. This is consistent with previous research stating that many Americans held Islamophobic views in the years following 9/11 (Deane & Fears, 2006), and that, though Islamophobia is not as prevalent as it was immediately following 9/11, many Americans continue to hold Islamophobic views in recent years (Pew, 2017).

Descriptive statistics for ISLAB items indicated severe positive skew and, therefore, I chose to treat the ISLAB items as ordinal. 7-point Likert scales, like the one used in the ISLAB scale, can be treated as ordinal or continuous (i.e., interval; Carifio & Perla, 2007; 2008). Whether it is justified to use such scales as continuous depends largely on the normality of the distribution, because this is a primary assumption of parametric tests (Carifio & Perla, 2007; 2008; Norman, 2010; Sullivan & Artino, 2013). This is relevant because, in the principal components analysis (Lee at al., 2009) and subsequent CFA (Lee et al., 2013) that initially validated the ISLAB, ISLAB items were treated as *continuous* despite issues of non-normality. One measurement implication for future research with the ISLAB is that it is likely worthwhile to observe ISLAB item distributions before determining if they should be treated as continuous or ordinal.

4.1.2.2 Interpreting SEM Results for Islamophobia

All of the factor loadings for ISLAB items for the latent Islamophobia construct were significant and, unlike RPT items, factor loadings for all eight ISLAB items were similar in terms of strength. This implies that what makes up the latent construct of Islamophobia is well represented by all of the items in the ISLAB scale, and that each item has importance in measuring the construct. It appears that items measuring the desire to avoid Muslims due to safety and comfort concerns, across a variety of situations, are useful in measuring Islamophobia. This effect mirrors Lee et al.'s (2013) findings, in which factor loadings were similar in strength across ISLAB items.

Another interesting measurement insight from the results for Model 1 comes from observing ISLAB item ordinal thresholds. The vast majority of thresholds were significant (see Table 6 above), meaning that there were meaningful distinctions between a participant answering

between one ordinal option and the next largest ordinal option. For instance, threshold 4 for ISLAB item 6 ($\tau = 1.00$, $p < 0.001$) represents the point on a theoretical, standardized continuous distribution of responses for that item at which a participant in this sample would change their response from 4 ("Neutral") to 5 ("Somewhat agree"). What is interesting from a measurement perspective is that not all of the thresholds were significant; furthermore, most of the thresholds that were not significant were the same threshold across different items: threshold 2. For ISLAB items 1, 2, 4, and 7, threshold 2 was not significant. This indicates that the distinction between responding to an item with 2 ("Disagree") and 3 ("Somewhat disagree") may *not* be meaningful. For instance, ISLAB item 1 asks if participants are opposed to new mosques being built in the US. That there is an important difference between answering "Strongly disagree" and "Disagree", but *not* between "Disagree" and "Somewhat disagree", is perhaps intuitive considering that when "Strongly disagree" is an option, "Disagree" and "Somewhat disagree" both indicate some level of Islamophobia and there may be little practical difference between them. This may indicate that this scale, though thoroughly tested and validated by its original authors, should be further tested when treating its items as ordinal because this study is one of the first usages of the ISLAB scale while treating items as ordinal.

4.2 Research Question 2: Relationship between RPT and Islamophobia

Researchers have long been aware that public risk perceptions are related to public responses to a variety of specific hazards (Slovic, 2000). The ensuing theory has been that risk perceptions shape responses to hazards in general, but this, of course, has not been empirically demonstrated for all hazards, including terrorism. In fact, though scholars have speculated that risk perceptions for terrorism are related to responses to terrorism (Marshall et al., 2007; Steele et al., 2015; Sinclair & Antonius, 2012; Slovic & Peters, 2006; Swahn et al., 2003), no research

has been conducted to directly investigate the existence or nature of this relationship. The current study provides evidence that RPT is related to a common response to terrorism in the US—Islamophobia (Steele et al., 2015; Swahn et al., 2003). Model 1 results show a significant, positive relationship between RPT and Islamophobia, such that, as Americans' RPT increases, Islamophobia also increases. The statistical significance of this relationship provides confidence that this effect is not limited to this study's sample, but to the American population that it represents, supporting the second hypothesis of this study. Future studies ought to further explore this connection using experimental methods to test if a causal relationship also exists between RPT and Islamophobia.

4.2.1 Implications of RPT and Islamophobia's Relationship

While individual-level responses to terrorism, like clinical stress disorders and anxiety about terrorism, have been well documented (Sinclair & Antonius, 2012), social-level responses to terrorism have also had negative impacts on the US in terms of intergroup relations, global conflict, and threats to US democracy (Marshall et al., 2007; Steele, Parker, & Lickel, 2015). In this study, we find clear evidence that level of RPT is related to Islamophobia, though RPT is likely related to other negative social responses to terrorism as well and future research should test such relationships. Though not measured in this study, RPT's connection to responses to terrorism like stress, fear, and anxiety should be examined in future research.

4.2.1.1 Consequences of RPT-Driven Islamophobia

The existence of a relationship between RPT and Islamophobia supports the theory that Americans associate Muslims and Islam with terrorism of any type (Kearns et al, 2019), as no specific type of terrorism (e.g., Islamist or jihadist terrorism) is referenced in this study's items. It also suggests that RPT may have cascading effects with serious consequences for US Muslims

and "those racialized to be Muslim" in the US (Samari, Alcala, & Sharriff, 2018, p.1). The results of this study, that RPT was related to reported level of Islamophobia, suggest RPT could also be related to Islamophobic behaviors. For instance, RPT may be related to like discrimination against Muslims, verbal harassment of Muslims, and physical violence against Muslims, including hate crimes and targeted killings (Abdelkader, 2016; Byers & Jones, 2007; Swahn et al., 2003). RPT may also be connected to more insidious, institutionalized forms of Islamophobia, such as support for policies allowing the torture of Muslim terror suspects (i.e., support for the usage of "enhanced interrogation" at government black sites and Guantanamo Bay), banning travel to the US from Muslim-majority countries, surveiling Muslim communities, and profiling Muslims as terrorists (Altheide, 2006; Gallup, 2011; 2017a; Kearns & Young, 2018; Pew, 2018; Wetherell, Weisz, Stolier, et al., 2013). Since 9/11, policies reflecting this support have passed into legislation, manifesting in the sanctioning of the Iraq War, the approval of the Patriot Act (Fischhoff, 2011; Huddy & Feldman, 2011), the creation of the TSA's "No-Fly" List (Jadallah, 2010), and more recently Executive Order 13769 (aka., the "Muslim travel ban"). As a follow up to this study, it would be worthwhile to measure the relationship between RPT and Islamophic behaviors, or at least support for Islamophobic behaviors and support for Islamophobic policies, which could be measured far more easily.

Based on the findings in the present study, reducing RPT *may* reduce Islamophobia and possibly other negative responses to terrorism as well. This is a potentially fruitful avenue for future research. If it is possible to reduce Islamophobia via the reduction of RPT, there may be far-reaching positive effects. Any opportunity to reduce Islamophobia is worth exploring, not only because the majority of US Muslims are negatively affected by Islamophobia (Gallup, 2011; Lee et al., 2009; 2013), but also because it is known to contribute to radicalization at the

individual and group level for both Islamist and extreme right-wing (XRW) terrorists. For instance, Islamist terrorists rejoice when Americans are Islamophobic because it reinforces their narrative and helps them recruit new members (Callimachi, 2017). On the other hand, Islamophobic sentiment is ubiquitous among XRW terrorism's ideology and recruitment rhetoric (Hafez, 2014). If Islamophobia can be reduced in the US, and this is also reflected in US foreign and domestic policy, it will make it more difficult for Islamist terror groups to recruit on the basis of Islamophobia as a grievance and for XRW groups to recruit on the basis of Islamophobic hate. Experimentally testing strategies to reduce Islamophobia by reducing RPT is a useful next step in this line of research.

4.2.1.2 Implications for Risk Communication for Terrorism

The results of this study also have implications for risk communication regarding terrorism. Communication about terrorism, whether from the media, the government, or other sources, seems to inflate the perceived risk associated with terrorism. And because RPT is related to serious, negative outcomes like Islamophobia, risk communication for terrorism needs to be seriously reexamined and altered. Experts have clearly demarcated what makes risk communication about terrorism effective for promoting public safety, but this advice has been roundly ignored by media and political officials for decades (Fischhoff, 2011; Huddy & Feldman, 2011). According to risk communication experts, communications to the public about terrorism's risk should 1) come from a trustworthy, expert, and authoritative source, 2) address a *specific* and imminent threat (or possible threat), 3) provide clear, accurate details about the threat, its location, and its timeframe, and 4) motivate citizens to take concrete actions to prevent or mitigate harm, but not motivate or incite them to panic (Fischhoff, 2011; Huddy & Feldman, 2011; Freedman, 2005; US General Accounting Office, 2002; Zimbardo, 2003). Sadly,

recommended risk communication for terrorism and how terrorism's risk is actually communicated by the media and politicians are completely out of sync (Fischhoff, 2011; McDermott & Zimbardo, 2007; Mueller & Stewart, 2012; Zimbardo, 2003), which may explain why Americans' RPT is so far from formal risk estimates.

Media communication about terrorism, which is the primary means by which terrorism's risk is communicated to the public (Jensen, 2007; Nellis & Savage, 2012), departs from expert recommendations in several ways. First, though experts recommend communicating about the risk of *specific* terror attacks, terrorism in the media is more often presented as a vague, ever-present boogeyman (Mueller, 2006; Mueller & Stewart, 2012). Nebulous speculation about terrorism as a general entity provides fodder to fill the demands of a 24-hour news cycle and is sure to generate ratings. Censorship of free media is never justifiable in democratic society, but practical incentives to encourage media to be responsible in their reporting on terrorism could help promote public safety rather than promote ratings and revenue. Although well beyond the scope of this study, systems for holding news sources accountable and factually accurate is clearly a dire need in modern society (Valenzuela, Halpern, Katz, & Miranda, 2019). Future research should explore the relationship between media presentation of terrorism, RPT, and negative responses to terrorism, like Islamophobia.

Although the media seems to play the largest role in disseminating information about terrorism and setting the narrative surrounding terrorism, the US government and individual politicians also hold a great deal of influence in terms of how terrorism and its risk are portrayed to the public (Mueller, 2006). Like media sources, risk communication from US authorities have not been aligned with the risk communication strategies recommended by experts. Policies at the national and state level dictate risk communication for potential mass casualty events, including

terrorism. Experts argue that government communication about terrorism's risk, like the color-coded Homeland Security Alert System (HSAS) and the National Terrorism Advisory System (NTAS; Department of Homeland Security, 2020) has done "more to terrorize the public than terrorism itself" (Sinclair & Antonius, 2012, p. 92; see also Zimbardo, 2003). As if this is not damning enough, experts have found that risk communication for terrorism often omits important facts about terrorist threats that would have helped citizens contextualize the terrorist threat and reduce related anxiety (Fischhoff, Gonzalez, Small & Lerner, 2003). Others have questioned whether it is necessary or wise for the HSAS, NTAS, and other systems to broadcast terrorist threats to the general public who can do little but worry about them, rather than only alerting relevant security, intelligence, and armed forces services (Zimbardo, 2003). Though the risk communications generated by government agencies have likely increased RPT, individual politician may have even more of an impact (Mueller, 2006). It has not been uncommon for political candidates or incumbent politicians to purposefully exaggerate the risk of terrorism to curry favor with voters by promising strong responses to protect them from terrorism (Mueller, 2006; Olsen, 2016; Silver, 2016). It is likely that such tactics contribute to increased RPT levels and its unfortunate repercussions, including Islamophobia.

The risks for some hazards are likely to always be underestimated due to their mundane or commonplace nature; for instance, heart disease, car accidents, and suicide and are, unfortunately, rarely the topics of national political debates. Risk for hazards that are flashier and more frightening, like terrorism, are likely to always remain overestimated. However, concerted efforts from policy makers and government officials may be able to mitigate these effects to some extent. Refocusing national risk assessment and communication policies to address the hazards that carry the most risk to Americans, even though they appear mundane (e.g., heart

disease) has great potential for improving public safety and wellness. If US policies are to be evidence-based, risk communication priorities ought to rely more on FREs, and less on risk perceptions. Transnational terrorism, which is best exemplified in the US by Islamist terrorism (e.g., Al Qaeda, ISIS), is not an important risk for the US public to be concerned about and risk communication strategies should reflect that. However, domestic terrorism in the US, which is best exemplified by extreme right-wing (XRW) terrorism, may be a more important risk communication priority. This is not because of the death toll XRW terrorism exacts, which is statistically minute, but because it is inextricably connected with systemic racism, which is a hazard with high levels of objective risk for many Americans (Paradies et al., 2015; Pascoe & Richman, 2009). That is, it is so unlikely that an American will be a victim of XRW terrorism that it should not be a risk communication priority alone; however, many Americans are victims of racism, which is difficult to separate from XRW terrorism in the US.

4.2.1.3 Interpreting the Strength of the Relationship between RPT and Islamophobia

RPT had a significant and positive relationship with Islamophobia in this study; however, this relationship was also relatively weak. Based on previous research, the effect size for this relationship was not as large as would have, perhaps, been expected. For instance, many have posited that there is a strong connection between perceptions of terrorism and perceptions of Muslims, Islamophobia, and discrimination towards Muslims (Ciftci, 2012; Dekker & Van der Noll, 2007; Kearns et al., 2019; Lee et al., 2009; Marshall et al., 2007; Swahn et al., 2003). There are several potential reasons for why the relationship between RPT and Islamophobia in the present study was not stronger. First, it could be that the relationship between RPT and Islamophobia would have been stronger if RPT was assessed using only risk estimate items, rather than all twelve RPT items, including risk ranking and risk insurance items. Consider the

patterns of inter-item correlations in Table 5, which indicate that the relationships between risk estimate items and ISLAB items are much stronger, on average, than the relationships between risk ranking items and ISLAB items and between risk insurance items and ISLAB items. Perhaps a more convincing explanation is that views of terrorism in US are likely evolving as XRW terrorism continues to become more common in the US relative to Islamist terrorism. XRW has increased more rapidly in the US and other Western countries than Islamist terrorism has in the past 5 years (Center for Strategic and International Studies, 2020; Global Terrorism Index, 2020; New America, 2020) and one does not have to look very far to find recent instances of domestic XRW terrorism (e.g., the January 6, 2021 Capitol riots). There have simply been more XRW terror attacks on US soil than Islamist attacks on US soil in recent years (Global Terrorism Index, 2020; New America, 2020). As a result, XRW terrorism has become increasingly relevant in public and political discourse. In the past several years, government agencies and officials have been clear in stating that XRW terrorism is the most serious terrorist threat to the safety of US citizens (Anti-Defamation League, 2020; Department of Homeland Security, 2021; Federal Bureau of Investigation, 2021; National Directorate of Intelligence, 2021). Islamist terrorism was once nearly synonymous with terrorism among Americans, but since the 2018 fall of ISIS, the threat of XRW terrorism has likely become more and more salient. It is possible that Americans are less concerned about Islamist terrorism now than they once were twenty, ten, or even five years ago, and that concerns about XRW terrorism have partly filled that void. This may have weakened the relationship between RPT, which refers to terrorism in general and not a specific type of terrorism, and Islamophobia. One avenue future research could take to explore this is to parse terrorism according to its types, specifically exploring RPT for the two most prevalent types of terrorism in the US: XRW and Islamist terrorism. In addition, such research could

explore RPT for types of terrorism and specific negative responses to terrorism. For instance, RPT for Islamist terrorism may be positively associated with Islamophobia, whereas RPT for XRW terrorism may be associated with different responses, like fear of or negative attitudes about White Americans and/or conservatives.

4.3 Limitations

4.3.1 Sample and Procedure

This study has several limitations that are important to consider. First, though this study was designed such that the sample was representative of the US population, the sampling was not truly random (i.e., participants were not selected at random from a complete list of US adults) and therefore can only be considered an approximation of the US population. Instead, the study relied on stratified random sampling within a subset of the US population—those who were part of Qualtric's partner panels. While there are tens of millions of Americans who participate in these panels, such individuals may differ systematically from the rest of the US population in unknown ways (although there is no particular reason to believe this is the case). The sample in this study does appear to approximate the US population in terms of key demographics, though women and African-Americans are slightly overrepresented and people with bachelor's degrees are slightly underrepresented (US Census, 2018).

In terms of the procedure and study design, the primary limitations are that the study is cross sectional and purely correlational. Data collection for this study took place over one time point for each participant; that is, each variable in this study was measured only once for each participant. In addition, data collection did not occur over many weeks, months, or years, but in the span of only 17 days. This has implications for how to interpret its results. Although RPT can be measured at one given time, a person's RPT, like risk perceptions for any hazard, is

constantly evolving. For instance, it would be very interesting to know how RPT has evolved in the US over the past twenty years (i.e., since 9/11). Data collection for the present study took place at a specific and fairly unique point in history. In May 2020, when data was collected, the US was going through a historic period of uncertainty stemming from one hazard in particular—COVID-19. Unsurprisingly, this study's results (i.e., risk rankings) indicate that COVID-19 was the predominant risk on most Americans' minds at the time of data collection. That is, terrorism may not have been Americans' "biggest fish to fry" at the moment of data collection, despite the fact that in previous years it has consistently ranked as one of the top hazards Americans are most worried about (Gallup, 2017). Because data collection took place at such a distinctive time, this study is vulnerable to cohort effects. In addition, the measurement of RPT's relationship with Islamophobia at this time is unique as well. XRW terrorism accounted for nearly 70% of terrorist attacks in the US in 2019 and had accounted for 90% of attacks between January and May of 2020 (Jones, Doxsee, & Harrington, 2020), which is also important to consider. Had data been collected in 2017 (during ISIS's active period), perhaps the relationship between RPT and Islamophobia would have been stronger; if it were to be collected three years from now, there is no telling what that relationship might look like. Terrorism is constantly evolving, as is RPT, and this study is limited as a snapshot of RPT at one specific time.

Because this study had no experimental component and had only one time point for data collection we cannot establish any form of causation between RPT and Islamophobia nor can we even establish temporal precedence (i.e., that RPT comes before Islamophobia). The current study can only provide evidence that RPT and Islamophobia are related to each other, such that as one increases the other also increases. Cross-lag longitudinal studies assessing RPT and Islamophobia at multiple time points for the same participants could test for temporal

precedence. It is likely that the nature of these two variables is that they are mutually reinforcing, i.e., that increases in RPT lead to increases in Islamophobia and *vice versa*. To further assess these relationships, future research should experimentally test for causal relationships between RPT and Islamophobia.

4.3.2 Measures

One limitation of this study is that RPT items are novel and exploratory, considering RPT has never been comprehensively measured. The items used in this analysis are derived from risk perception literature and have their basis in evidence from this research. However, when creating scale items, tradeoffs are made at each decision point. For instance, risk estimate items in this study used a scale from 0 to 100, but would it be better to use a 7- or 9-point Likert scale instead (Bruine de Bruin, 2006; Fischhoff, 2011)? Though this would curtail the number of response options, it would also mean that each response option has a specific label, which might make it easier for participants to understand. Instead of the scale from 0 to 100, perhaps risk estimate items should use a scale in which participants estimate the likelihood that terrorism will kill them (or whoever) in terms of a ratio; i.e., the chances of being killed are 1 out of 100, 1 out of 1,000, 1 out of 1,000,000…, etc. (Fischhoff et al., 2004; Fischhoff, 2011). Such alternative scales carry pros and cons, but in the end the 0 to 100 scale was chosen to maximize variability and provide an interval scale. Across all RPT items, items first asked people about terrorism's "risk to safety", and then specifically defined risk to safety as terrorism's risk of causing death. As stated (see Methods), this choice was made for a reason (Slovic, 1987; 2000), but a theoretical rationale could have also been made for phrasing items to ask about risk of injury or harm instead. Indeed, risk of death really only applies to individuals, and ultimately risk of harm is what must be considered for RPT to the US as a nation (hence why these items were phrased differently for

"US as a nation" items). To summarize, every decision about how to create RPT items was made according to previous research and existing theory, but there may not be a truly best or "correct" solution for each of these decisions. In this way, the measures of this study are inherently limited.

In addition, all measures in this study are self-reported. This naturally comes with limitations. Assessing participants' RPT and Islamophobia may be inaccurate if participants are not totally honest in their responses due to various response biases (e.g., survey fatigue, social desirability bias, etc.). To help reduce this bias, participants were required to commit to providing high-quality, honest answers before answering any questions, though this is hardly a foolproof method to prevent biased responses. In addition, a common criticism of self-report measures is that participants may not be able to provide accurate answers, even if they fully intend to answer honestly. However, research with self-report data indicates that people are able to accurately report *what* their attitudes, actions, or feelings are, but are unable to accurately report *why* they have a specific attitude or feeling or took a certain action (Morling, 2017). In this study, participants are asked what their attitudes or judgments are, but are not asked why they hold those attitudes and judgments.

4.3.3 Data Analysis

Determining RPT's latent structure was also an unprecedented and exploratory undertaking. Two tested structures are reported in this analysis; both were derived from risk perception and judgment and decision-making literature and have their basis in evidence from this extant research. These showed good model fit, and one, ultimately, was retained as a reasonable structure for RPT.

Model 1 included three types of RPT items, risk estimates, rankings, and insurance, following previous research and risk perception theory. Including all three measurement types matched the conceptual definition of RPT the most closely, and therefore seemed the most theoretically justified course of action. However, while using all three measurement types (i.e., including risk ranking and risk insurance items) makes the RPT scale more comprehensive, it also seems to add more "noise". That is, RPT ranking items and RPT insurance items had lower factor loadings and higher residual variances than RPT estimate items (see Table 6), indicating that they capture less of latent RPT's latent "signal" and more "noise", i.e., error. While it is worthwhile to capture all of the theoretical trappings of RPT, it could be more accurate to include only risk estimate items, though this approach would be less holistic. This is a potential limitation that should be explored further in future research.

Another limitation is that the present SEM analysis did not examine the effects that other variables, such as race, religion, political preference, age, etc., may have on RPT and on RPT's relationship with Islamophobia. This was beyond the scope of the current study, which was already complex, but could be examined in future studies. One possible study that could further explore these connections is a multivariate analysis in which the associations that RPT, political preference, demographic factors, and Islamophobia have with each other are all assessed in one model.

5 CONCLUSION

This study contributes to existing knowledge of risk perception and its real-world effects. Risk perception for terrorism has never before been studied in earnest. This study provides a comprehensive measure of RPT, a much needed addition to risk perception and general psychology literature. Having an empirically supported RPT measure empowers psychologists and other scholars with a tool to meaningfully compare RPT across individuals and groups. One major implication of this research is that Americans seem to see terrorism as a source of moderate risk when, according to FREs, they should see its risk as minimal or negligible. An important goal for future risk communication regarding terrorism should be to help bring RPT in the US back into touch with reality.

Furthermore, having a working RPT measure enables researchers to observe the relationships RPT has with relevant variables, including responses to terrorism that are destructive to individuals, groups, and society at large. Specifically, this study establishes that there is a positive relationship between RPT and Islamophobia, a connection that has had myriad negative consequences both domestically and internationally. That this relationship exists may not be a surprise, but that it can now be *shown* to exist and that there may now be a budding avenue for the reduction of Islamophobia in the US is an encouraging discovery. RPT has a positive relationship with Islamophobia; though correlation does not imply causation, it is possible that if RPT can be reduced, Islamophobia can be reduced, pending further research.

This study's findings are in line with previous research and confirm the assumptions many scholars have been making for years (Breckenridge et al., 2012; Gigerenzer, 2004; Marshall et al., 2007). In addition, this study provides insight into the processes of judgment and decision-making around terrorism and responses to terrorism by exploring the role of risk

perceptions therein. However, this study is but an early start to this research. Promising lines of research expanding on the findings of this study include experimental tests of the relationship between RPT and Islamophobia, an examination of news media consumption and RPT, and tests of evidence-based risk communication strategies for terrorism. As terrorism continues to evolve in the US and around the world, psychologists would do well to continually take the pulse of RPT to help prevent the "delusionary" reactions to terrorism of the past (Mueller & Stewart, 2012, p.96) from causing harm in the future.

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APPENDICES

Appendix A

Appendix A.1. Risk estimate items as they appeared to participants (RES shown)

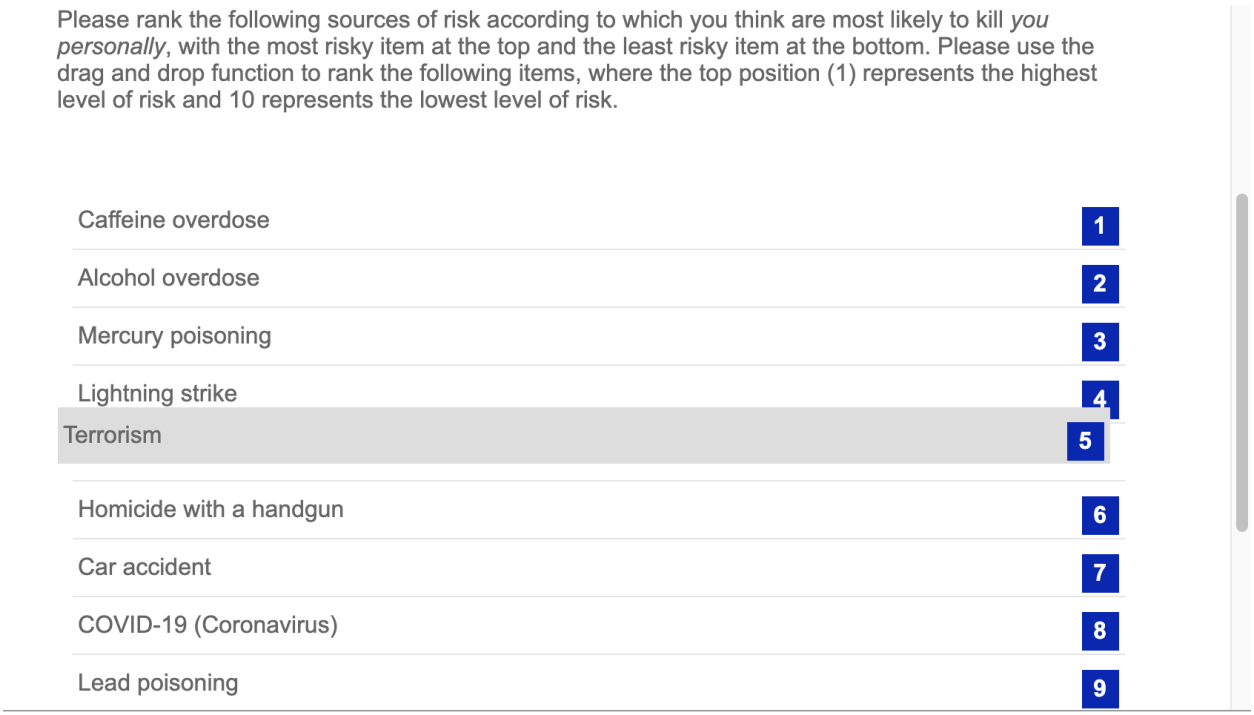
The questions below ask what you think about the risk of terrorism. On a scale where 0 means "No risk at all" and 100 means "An extremely large risk", please choose a number that best represents your response.

No risk at all — A moderate risk — An extremely large risk

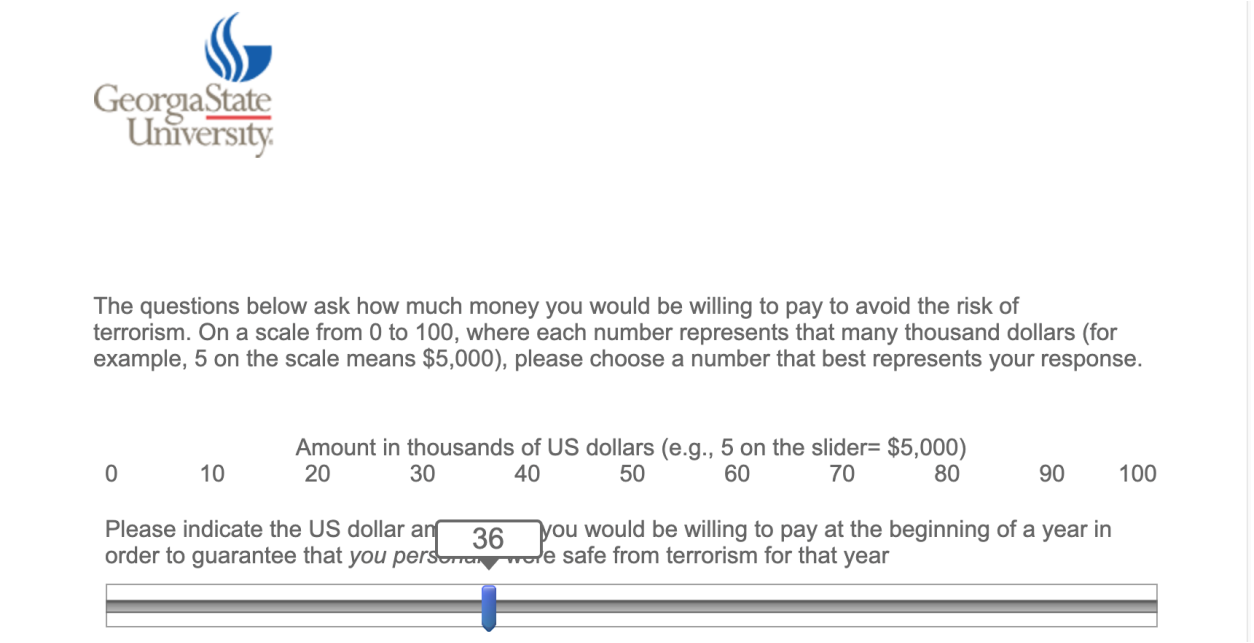
0 10 20 30 40 50 60 70 80 90 100

How much of a risk do you believe terro[44] to your own personal safety? In other words, what is the risk of terrorism killing *you, personally*?

Appendix A.2. Risk ranking items as they appeared to participants (RRS shown)



Appendix A.3. Risk insurance items as they appeared to participants (RIS shown)



Appendix A.4. Islamophobia (ISLAB) items as they appeared to participants (ISLAB1 to ISLAB4 shown)

The following questions will ask you about your views on Muslims and Islam. This survey is totally anonymous and your responses are important, so please select the response that best represents how you truly feel.

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
I would support any policy that would stop the building of new mosques (Muslim place of worship) in the U.S.	○	○	○	○	○	○	○
If possible, I would avoid going to places where Muslims would be.	○	○	○	○	○	○	○
I would become extremely uncomfortable speaking with a Muslim.	○	○	○	○	○	○	○
Just to be safe, it is important to stay away from places where	○	○	○	○	○	○	○

Appendix B

Appendix B.1. R code used in analyses

Model 1

```
> #proposed model RPT and Islamophobia
> OGmodel_ISL_Ordinal <- '
+         RPT_RiskEstimates =~ NA*RPT_Slide_1   + RPT_Slide_4          + RPT_Slide_5 +
RPT_Slide_9
+         RPT_RiskRanking =~ NA*Rank_Self_7     + rank_LO_7   + rank_AA_7 + rank_US_7
+         RPT_RiskInsurance =~ NA*ins_slider_1     + ins_slider_4 + ins_slider_5 + ins_slider_9
+
+         RPT =~ NA*RPT_Slide_1    +  RPT_Slide_4          + RPT_Slide_5           +
RPT_Slide_9 + Rank_Self_7 + rank_LO_7   + rank_AA_7 + rank_US_7 + ins_slider_1    +
ins_slider_4     + ins_slider_5 + ins_slider_9
+
+         Islamophobia=~ NA*Islamophobia_Scale_1 + Islamophobia_Scale_2 +
Islamophobia_Scale_3 + Islamophobia_Scale_4 + Islamophobia_Scale_5 +
Islamophobia_Scale_7 + Islamophobia_Scale_8 + Islamophobia_Scale_9
+
+         RPT_Slide_1~~0*RPT_Slide_1
+         RPT_RiskEstimates ~~ 1*RPT_RiskEstimates
+         RPT_RiskRanking ~~ 1*RPT_RiskRanking
+         RPT_RiskInsurance ~~ 1*RPT_RiskInsurance
+         RPT ~~ 1*RPT
+         Islamophobia~~1*Islamophobia
+
+         RPT~~Islamophobia
+
+         RPT_RiskEstimates~~ 0*RPT_RiskRanking
+         RPT_RiskEstimates~~ 0*RPT_RiskInsurance
+         RPT_RiskInsurance~~ 0*RPT_RiskRanking
+         RPT~~0*RPT_RiskEstimates+ 0*RPT_RiskRanking+ 0*RPT_RiskInsurance
+         Islamophobia~~0*RPT_RiskEstimates+ 0*RPT_RiskRanking+ 0*RPT_RiskInsurance
+
+         RPT_RiskEstimates ~ 0
+         RPT_RiskRanking ~ 0
+         RPT_RiskInsurance ~ 0
+         RPT ~ 0
+         Islamophobia~0
+ '
> OGmodel_ISL_Ordinal_CFA <- cfa(OGmodel_ISL_Ordinal, data = DissStatsNum, estimator
= "WLSMV", parameterization="delta",
ordered=c("Islamophobia_Scale_1","Islamophobia_Scale_2","Islamophobia_Scale_3","Islamop
```

```
hobia_Scale_4","Islamophobia_Scale_5","Islamophobia_Scale_7","Islamophobia_Scale_8","Isla
mophobia_Scale_9"))

> summary(OGmodel_ISL_Ordinal_CFA, fit.measures= TRUE)

 >standardizedSolution(OGmodel_ISL_Ordinal_CFA)
```

Model 2

```
> #4factor w covariances between rpt factors
> fourfactor_w_covariances <- '
+         RPT_RiskEstimates =~ NA*RPT_Slide_1   + RPT_Slide_4          + RPT_Slide_5 +
RPT_Slide_9
+         RPT_RiskRanking =~ NA*Rank_Self_7     + rank_LO_7  + rank_AA_7 + rank_US_7
+         RPT_RiskInsurance =~ NA*ins_slider_1     + ins_slider_4 + ins_slider_5 + ins_slider_9
+
+         Islamophobia=~ NA*Islamophobia_Scale_1 + Islamophobia_Scale_2 +
Islamophobia_Scale_3 + Islamophobia_Scale_4 + Islamophobia_Scale_5 +
Islamophobia_Scale_7 + Islamophobia_Scale_8 + Islamophobia_Scale_9
+
+         RPTSelf=~ NA*RPT_Slide_1 + Rank_Self_7 + ins_slider_1
+         RPTLO=~ NA*RPT_Slide_4 + rank_LO_7 + ins_slider_4
+         RPTAA=~ NA*RPT_Slide_5 + rank_AA_7 + ins_slider_5
+         RPTUS=~ NA*RPT_Slide_9 + rank_US_7 + ins_slider_9
+
+         RPT_Slide_1~~0*RPT_Slide_1
+         RPT_RiskEstimates ~~ 1*RPT_RiskEstimates
+         RPT_RiskRanking ~~ 1*RPT_RiskRanking
+         RPT_RiskInsurance ~~ 1*RPT_RiskInsurance
+         Islamophobia~~1*Islamophobia
+         RPTSelf ~~ 1*RPTSelf
+         RPTLO ~~ 1*RPTLO
+         RPTAA ~~ 1*RPTAA
+         RPTUS ~~ 1*RPTUS
+         RPTSelf ~~ Islamophobia
+         RPTLO ~~ Islamophobia
+         RPTAA ~~ Islamophobia
+         RPTUS ~~ Islamophobia
+
+         RPT_RiskEstimates~~ 0*RPT_RiskRanking
+         RPT_RiskEstimates~~ 0*RPT_RiskInsurance
+         RPT_RiskInsurance~~ 0*RPT_RiskRanking
+         RPTSelf~~0*RPT_RiskEstimates+ 0*RPT_RiskRanking+ 0*RPT_RiskInsurance
+         RPTLO~~0*RPT_RiskEstimates+ 0*RPT_RiskRanking+ 0*RPT_RiskInsurance
+         RPTAA~~0*RPT_RiskEstimates+ 0*RPT_RiskRanking+ 0*RPT_RiskInsurance
```

```
+         RPTUS~~0*RPT_RiskEstimates+ 0*RPT_RiskRanking+ 0*RPT_RiskInsurance
+         Islamophobia~~0*RPT_RiskEstimates+ 0*RPT_RiskRanking+ 0*RPT_RiskInsurance
+
+         RPT_RiskEstimates ~ 0
+         RPT_RiskRanking ~ 0
+         RPT_RiskInsurance ~ 0
+         RPTSelf ~ 0
+         RPTLO ~ 0
+         RPTAA ~ 0
+         RPTUS ~ 0
+         Islamophobia~0
+         '
> fourfactor_w_covariances_CFA <- cfa(fourfactor_w_covariances, data = DissStatsNum,
estimator = "WLSMV", parameterization="delta",
ordered=c("Islamophobia_Scale_1","Islamophobia_Scale_2","Islamophobia_Scale_3","Islamop
hobia_Scale_4","Islamophobia_Scale_5","Islamophobia_Scale_7","Islamophobia_Scale_8","Isla
mophobia_Scale_9"))

> summary(fourfactor_w_covariances_CFA, fit.measures= TRUE)

> standardizedSolution(fourfactor_w_covariances_CFA)
```

Nested Model Comparison: Models 1 and 2

```
> compareFit(OGmodel_ISL_Ordinal_CFA,fourfactor_w_covariances_CFA,nested = TRUE)
```

Appendix C

Appendix C.1. Identification Table for Models 1 and 2

Data Elements	Variances	Covariances	Means	Thresholds	Total
	12	190	12	48	262

Parameters	Model 1	Model 2
Θ	11	11
Ψ	1	10
λ	32	32
τ	48	48
α	0	0
ν	12	12
Total	104	113
df	158	149

Note: Delta parameterization was used (so there are no variances for ISLAB items) and variance for RES was not estimated due issues of non-normality.