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Communicating with the public about marauding terrorist firearms attacks:

Results from a survey experiment on factors influencing intention to *'Run, Hide, Tell'* in the UK and Denmark

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ABSTRACT

Effective risk communication is an integral part of responding to terrorism, but until recently there has been very little pre-event communication in a European context to provide advice to the public on how to protect themselves during an attack. Following terrorist attacks involving mass shootings in Paris, France in November 2015, the UK National Police Chiefs' Council released a 'Stay Safe' film and leaflet that advises the public to 'run', 'hide' and 'tell' in the event of a firearms or weapons attack. However, other countries including Denmark do not provide preparedness information of this kind, in large part because of concern about scaring the public. In this survey experiment, 3003 UK and Danish participants were randomly assigned to one of three conditions: no information; a leaflet intervention; and a film intervention to examine the impact of *'Run, Hide, Tell'* advice on perceptions about terrorism, the security services and intended responses to a hypothetical terrorist firearms attack. Results demonstrate important benefits of pre-event communication in relation to enhancing trust, encouraging protective health behaviours and discouraging potentially dangerous actions. However, these findings also suggest that future communications should address perceived response costs and target specific problem behaviours. Cross-national similarities in response suggest this advice is suitable for adaptation in other countries.

KEYWORDS: Risk Communication; Risk perception; Protection Motivation Theory; Terrorism; Counter-terrorism

1. INTRODUCTION

Governments and security services across Europe have been preparing for a possible 'Mumbai-style' terrorist incident since 2008 but coordinated attacks on Paris in November 2015 confirmed the immediacy of the threat. Consequently, Lord Toby Harris described marauding terrorist firearms attacks (MTFAs) as "*the most significant terrorist threat affecting the UK and other western countries*" in his independent review of London's preparedness to respond to a major terrorist incident (Harris, 2016, p. 9). Following these attacks, the UK police released a film and leaflet to advise the public on what to do in the event of a firearms or weapons attack (NaCTSO, 2015). This guidance was employed as part of an incident response for the first time when the London Met police used social media to warn people to *'Run, Hide, Tell'*[1] during attacks on London Bridge and Borough Market in June 2017 (Davidson, 2017). Shortly afterwards an updated version of the film was released for UK holiday makers travelling abroad (BBC, 2017). Whilst the UK is not the only country to issue this type of advice – France, for example, launched a mobile phone app in 2016 to provide real time information on how to react during an attack (Chrisafis, 2016) - this new policy of providing terrorism preparedness information to the public contrasts with the approach adopted by many other European countries. For example, Denmark does not provide this kind of guidance, in large part because of concern about scaring the public (Parker, Pearce, Lindekilde, & Rogers, 2017).

Risk theory has established a number of factors that predict fear amongst the general public. This research has established that risks that are unfamiliar, unnatural, not freely chosen, or perceived as unfair or uncontrollable are likely to be associated with heightened risk

[1] In the US the public are advised to 'Run, Hide, Fight'. For a comparison of similarities and differences in these messages see http://www.crisis-solutions.com/run-hide-tell-vs-run-hide-fight/.

perceptions (Beck, 1999; Rogers, Amlot, Rubin, Wessely, & Krieger, 2007; Satterfield, Mertz, & Slovic, 2004). Furthermore 'dread risks' – i.e. low probability, high impact events that are perceived to have catastrophic potential – are also associated with particularly high levels of concern (Gigerenzer, 2006; Slovic, Fischhoff, & Lichtenstein, 1981). It is therefore reasonable to expect that the public will fear terrorism and that some reassurance is required. However, there is also evidence to suggest that whilst people may change their behaviours to reduce the perceived risk of terrorism, their responses tend to be proportionate to the risk (Sheppard, Rubin, Wardman, & Wessely, 2006). Additionally, experts often overestimate the likelihood of the public over-reacting to risk communications and assume 'panic' in situations where it is unlikely (Rogers & Pearce, 2013). This is not to say that people will be unafraid, but rather that fear is not synonymous with panic. This distinction matters, as panic implies the adoption of selfish, irrational behaviours that have different implications for emergency planning and response. Understanding how European publics will respond to this new pro-active approach to communicating about terrorism is vital to ensure that official guidance balances the requirement to protect the public from unnecessary alarm with the need to offer protective advice to mitigate the impacts of a known terrorist threat.

Sensitivities regarding pre-event communications mean that research to date has reflected government priorities in focusing predominantly on developing and testing communications that could be issued during an attack (Becker, 2004; Casman & Fischhoff, 2008; Pearce, Rubin, Selke, et al., 2013; Wray et al., 2008). However, the changed threat landscape means that communications policy is shifting and empirical evidence regarding the impact of pre-event communication is of pressing importance. Although there is limited terrorism-related research on this topic, the primary focus of the '*Run, Hide, Tell*' campaign on encouraging protective health behaviours means that insights from the more substantial literature on

health behaviour and persuasive communication are likely to apply. There are a number of well-established psychological theories of health behaviour including the Theory of Planned Behaviour(I Ajzen, 1989) and the Extended Parallel Processing Model (Poland, 2010) which specify factors that are likely to influence behavioural responses to health threats. A particularly useful model for examining behavioural responses to any threat for which there is an effective recommended response is Protection Motivation Theory (Maddux & Rogers, 1983; Rogers, 1975; Teasdale, Yardley, Schlotz, & Michie, 2012). This theory of persuasive communication proposes that responses to protective health messages will be influenced by risk perceptions (threat appraisals) and perceived self- and response efficacy (coping appraisals). We selected PMT as the most appropriate theoretical framework for this study as '*Run, Hide, Tell'* guidance provides a recommended response. Furthermore, whilst most models of health behaviour tend to be applied to longer-term behaviours such as smoking, PMT has also been successfully applied to lower-likelihood high impact health threats, such as pandemic influenza (Teasdale et al., 2012) and chemical incident emergencies (Pearce, Rubin, Amlot, Wessely, & Rogers, 2013) that are more akin to MTFAs.

In this study we used a survey experiment to test the behavioural impact of the first major pre-event communication campaign of its kind in Europe. Specifically, we examined the impact of the *'Run, Hide, Tell'* film and leaflet campaign on UK and Danish public perceptions about terrorism, the security services, and intended behavioural responses to a hypothetical MTFA. This involved testing potential risks associated with pre-event communications (in relation to elevating public risk perceptions), as well as potential benefits (in relation to enhancing public trust in security services' preparedness and response capability). We also compared the impact of the film and leaflet versions of the *'Run, Hide, Tell'* intervention and we tested the impact of perceptions associated with the adoption of protective health

behaviours for the first time in the context of MTFAs. In so doing this study extends the application of Protection Motivation Theory and establishes factors that should be incorporated into future communication campaigns.

In testing the impact of the '*Run, Hide, Tell*' campaign on intended behaviours in countries with different experiences of and discourses about terrorism, we were also able to identify the extent to which this guidance is likely to require adaptation for local concerns. This provides much needed evidence to inform counter-terrorism policy at a time when the importance of communicating with the wider public is increasingly recognised, but concern about alarming the public remains and the extent to which it is appropriate to issue guidance designed in a different national context is not known (Parker et al., 2017).

1.1. Public responses to terrorism and risk communication

Public responses play a central role in determining both direct and indirect effects of terrorism. Behavioural changes made in order to avoid real or perceived risks have the potential to impact the economy and society in important ways. Economic effects range from commercial impacts of reduced use of public transportation, seen in the wake of the 9/11 attacks (Gigerenzer, 2006), the 2004 Madrid bombings (Lopez-Rousseau, 2005) and the 2005 London bombings (Fasolo, Ni, & Phillips, 2008), to an increased burden on healthcare services due to low risk patients unnecessarily seeking care. For example, following Sarin attacks in the Tokyo subway in 1995, over five thousand of those who reported to hospital with physical symptoms had not in fact been directly exposed to nerve agent (Lemyre et al., 2005). Avoidance behaviours can also lead to decisions that may have negative health impacts. For example, Gigerenzer (2006) estimates that 1,500 Americans died on the road in the year following the 9/11 terrorist attacks as a consequence of eschewing flying.

For some who are unfortunate enough to be caught up directly in an attack, there may be very little that they can do to protect themselves. Not all, for instance, will have time to run during vehicle-ramming attacks as those seen in Nice, France in 2016, London, England in 2017 and in Barcelona and Cambrils, Spain in 2017. However, for others the adoption of protective health behaviours could be lifesaving. For example, 99% of occupants located below the impact points survived the 9/11 attack on the World Trade Center in New York. This has been attributed not only to physical improvements made to the building following its bombing in 1993, but also to the response of occupants who were described as exhibiting calm and altruistic behaviour during the evacuation (Proulx & Fahy, 2003). Additionally, analysis of 61 deadly assaults in public places between 2006 and 2016 found that 73% of those who survived did so by running (Forliti, 2017). Understanding likely public responses and encouraging protective health behaviours is therefore a crucial aspect of preparing for terrorism.

Risk and crisis communication is a relatively under-researched topic in the field of terrorism studies (Falkheimer, 2014; Schmid, 2011). There has been more research in the fields of health and medicine, communication and psychology, but this work has focused predominantly on the potential use of chemical, biological or nuclear agents (Ruggiero & Vos, 2013). This research has established that effective risk communication not only needs to take into consideration public understandings of the threat, but also their perceptions about the individuals and organisations tasked with providing public health advice. In fact, trust in message source is considered a primary route to cooperation with protective health advice (Glass & Schoch-Spana, 2002; Rogers et al., 2007). For example, differential uptake of prophylactic vaccination amongst at risk populations following the 2001 anthrax attacks has been attributed to lack of trust due to public health officials failing to effectively communicate

reasons for inconsistent treatment regimes for groups exposed at different times, as well as failure to address ongoing concerns about historic racial discrimination in vaccination programmes (Blanchard et al., 2005). The '*Run, Hide, Tell*' campaign is a police-led counterterrorism communication, which provides pre-event advice to the public regarding how best to protect themselves and others during a marauding terrorist firearms attack (MTFA). The extent to which the police are a trusted source of protective health advice has not yet been established.

Although to date there has been a lack of research in a European context exploring public responses to MTFAs, there is a well-established literature regarding factors likely to influence behavioural responses to public health emergencies more generally and to risk communications designed to mitigate these events (Rogers & Pearce, 2013). Protection Motivation Theory (PMT) (Maddux & Rogers, 1983) has established that willingness to follow protective health advice is influenced not only by risk perception and trust, but also by the perceived efficacy of recommend behaviours (response efficacy), perceptions of one's own ability to comply with recommendations (self-efficacy) and the perceived costs of doing so (response costs), e.g. the emotional cost of sheltering in place if it prevents parents reuniting with children (Pearce, Rubin, Amlot, et al., 2013).

According to PMT, protective behaviours are more likely to be adopted when perceived personal risk is high, when response efficacy and self-efficacy are also high and when response costs are low (Floyd, Prentice-Dunn, & Rogers, 2000). Coping appraisal (based on the sum of perceived self- and response efficacy minus response costs) is typically seen as having greater influence on behavioural intention than threat appraisal (comprised of assessments of threat severity and personal risk) (Milne, Sheeran, & Orbell, 2000; Ruiter, Abraham, & Kok, 2001).

Threat appraisal has also been shown to have a more complex relationship with intended behaviours than coping appraisal, predicting non-protective behaviours (such as fleeing a scene when it would be safer to stay in and shelter) as well as protective behaviours (Pearce, Rubin, Amlot, et al., 2013). Consequently risk and crisis communication is most likely to benefit from targeting coping appraisals to increase the likelihood of engaging in protective behaviours (Pearce, Rubin, Amlot, et al., 2013; Teasdale et al., 2012).

Health communication research on the impact of message format on persuasive communications tends to focus on different ways of presenting information within the same media (e.g. the use of text vs visual images in printed materials (Carnaghi, Cadinu, Castelli, Kiesner, & Bragantini, 2007; Silk, Nazione, Neuberger, Smith, & Atkin, 2012)) or narrative vs. non-narrative messages in videos (Bekalu, Bigman, McCloud, Lin, & Viswanath, 2017; Geary et al., 2008). However, a recent study which directly compared the impact of a film and leaflet in the context of preventing Lyme disease found that both interventions were effective in increasing knowledge, self-efficacy and intention to adopt protective behaviours (Beaujean et al., 2016). This suggests that consideration of format alone is unlikely to predict the efficacy of the *'Run, Hide, Tell'* guidance. Research on the content of protective health messages has found people respond more positively to guidance which includes basic information explaining the rationale behind actions and instructions (Rogers, Krieger, Jones, & Amlot, 2014). As the leaflet simply states that "it is a better option" to carry out recommended actions than alternative behaviours (e.g. "It's better to hide than confront"), the film may therefore be more likely to encourage the public to '*Run, Hide, Tell'* in the event of an MTFA.

1.2 Research questions and hypotheses

In sum, the importance of providing advice to European publics on how best to protect themselves during marauding terrorist firearms attacks (MTFAs) is increasingly recognised. However, there is a lack of empirical evidence regarding the impact of pre-event communication on MTFAs in this context, both in relation to potential benefits (in encouraging the adoption of protective health behaviours) and potential harms (in relation to elevating the perceived risk from terrorism). This study aims to address this gap by assessing the impact of '*Run, Hide, Tell'* guidance on perceptions about terrorism, the security services, and responses to a hypothetical MTFA scenario. It also aims to test whether factors identified from the broader health and risk communication literature (namely trust and coping appraisals) predict willingness to follow protective health advice issued by police to counter terrorism. Additionally, in testing responses in two national contexts this study aims to investigate the applicability of Protection Motivation Theory across contexts and establish the suitability of using risk communications designed for use in the UK in other European countries. To meet these overall aims, we formulated the following objectives and hypotheses:

Our first objective was to identify what impact pre-event communication has on perceptions about terrorism and the security services. Specifically, we wanted to test whether Danish policy makers are correct to be concerned that '*Run, Hide, Tell'* guidance will scare the public. Based on risk communication literature which suggests that these concerns are likely to be unwarranted (Rogers et al., 2007; Rogers & Pearce, 2013) and that communication plays an important role in building trust (Rogers & Pearce, 2013; Rogers & Pearce, 2016) we tested the following hypotheses:

H1: The provision of *'Run, Hide, Tell'* guidance (irrespective of message format) will not increase perceived personal risk from terrorist firearms attacks in comparison with the control group.

H2: The provision of '*Run, Hide, Tell'* guidance (irrespective of message format) will increase trust that security services are well prepared to respond to terrorist firearms attacks and provide guidance that can help keep the public safe in comparison with the control group.

Secondly, we wanted to examine the impact of '*Run, Hide, Tell*' guidance on intended behavioural responses during an MTFA. As the '*Run, Hide, Tell'* guidance contains clear actionable advice regarding recommended effective responses to a high risk scenario, it should promote behaviour change. We therefore hypothesised that:

H3: The provision of '*Run, Hide, Tell'* guidance (irrespective of message format) will increase the intention to adopt protective health behaviours in response to an MTFA scenario in comparison with the control group.

Thirdly we tested whether the *'Stay Safe'* film is more effective than its accompanying leaflet in encouraging the public to *'Run, Hide, Tell'* in the event of an MTFA. In line with evidence which suggests that a multi-media approach is the most effective strategy for risk communication (Fitzpatrick-Lewis, Yost, Ciliska, & Krishnaratne, 2010), the *'Run, Hide, Tell'* campaign was initially released in two formats: a leaflet and a film. Whilst the leaflet and film have been made available on the same website, the leaflet has also been distributed independently and this shortened version of the guidance has also been disseminated via social media. Concise text-based messages are therefore likely to have had a much greater reach than the film and it is therefore important to understand their unique impact. Based

on the lack of information in the leaflet regarding the reasons for the advice given we hypothesised that:

H4: The film presenting *'Run, Hide, Tell'* guidance will be more effective in encouraging the adoption of protective health behaviours than the leaflet.

Our fourth objective was to establish whether trust and coping appraisals predict willingness to follow '*Run, Hide, Tell*' guidance. Trust has been found to consistently and positively predict responses to risk communications (Earle, 2004; Glass & Schoch-Spana, 2002; Kasperson & Palmund, 2005). The extent to which an individual feels capable of carrying out the recommended behaviour (self-efficacy) and has confidence in this course of action (response efficacy) is also positively associated with compliance with protective health advice. However, this will be offset by any physical or psychological costs associated with adopting the recommended response (response costs) (Pearce, Rubin, Amlot, et al., 2013; Teasdale et al., 2012). Consequently, we hypothesised that:

H5: Participants who score highly on trust, self-efficacy and response efficacy will be more likely to intend following *'Run, Hide, Tell'* guidance and adopt protective health behaviours during an MTFA scenario

H6: Participants who score highly on response cost will be less likely to intend following *'Run, Hide, Tell'* guidance and adopt protective health behaviours during an MTFA scenario.

H7: The impact of self-efficacy and response efficacy on intention to follow '*Run, Hide, Tell'* guidance and adopt protective health behaviours during an MTFA scenario will be moderated by perceived response cost; such that the higher the cost, the lower the

relationship between self- and response efficacy and adoption of protective health behaviours.

Finally, we asked whether the '*Run, Hide, Tell*' advice is likely to be suitable for adoption in other European countries. The lack of empirical evidence regarding behavioural responses to MTFAs in a European context means that it is difficult to predict the extent to which *'Run, Hide, Tell'* guidance will need adaptation for different national contexts. We therefore asked this as an exploratory research question without a direct hypothesis.

2. METHOD

2.1. Study design and procedure

This study employed a survey experiment in which participants were randomly assigned to one of three conditions (1) no information (control), (2) a leaflet intervention, and (3) a film intervention. Participants in the film condition were shown the official '*Stay Safe: Firearms and Weapons Attack*' film and participants in the leaflet condition were shown the accompanying leaflet. Both set out three key steps for keeping safe: run, hide and tell. Two identical surveys were conducted, one in the UK and one in Denmark to assess possible national differences in responses. Differences in pre-event communication practice and experiences of terrorism make these ideal comparison countries for assessing the extent to which generic pre-event risk communication messages need to be adapted to take into consideration local concerns (Parker et al., 2017).

The Danish survey is a direct translation of the English survey. A Danish version of the leaflet and film were created for this study. Both were professionally translated, and the film voiceover was recorded by a professional from the Danish National Broadcasting Company. Participants in both countries were shown an edited version of the film from the '*Stay Safe*'

screen at 0:01:13. The opening reassurance message (originally presented by the UK national lead for counter terrorism policing) was removed and presented in text ahead of the film to avoid situating the threat in a UK context. The original version of the film is available at https://www.gov.uk/government/publications/stay-safe-film. UK and Danish leaflets are provided as supplemental materials.

A three-stage hypothetical scenario which described an evolving terrorist firearms attack in a shopping mall was used to test (a) the impact of '*Run, Hide, Tell'* guidance on intention to adopt protective health behaviours in response to an MTFA, and (b) the impact of trust, and coping appraisal on willingness to follow '*Run, Hide, Tell'* guidance. At the first stage (the 'run' stage), participants were asked to imagine that they are waiting outside a large department store for a companion who is shopping inside when they hear gunshots. At the second stage (the 'hide' stage), they were asked to imagine that having assessed that running would put them in greater danger, they have found a secure hiding place and are now hidden. At the final stage (the 'tell' stage) they were asked to imagine that they have now escaped and are safely clear of the shopping centre. At each stage, participants were asked to read the short scenario description carefully and select one answer for each statement that followed. They were then presented with a number of response options, one of which represents the behaviour recommended in the '*Run, Hide, Tell*' campaign. Other options included actions that would potentially put themselves or others in more danger; for example, waiting in place for their shopping companion during the 'run' stage, making a phone call that could reveal their hiding place during the 'hide' stage, or calling their companion who might still be caught up in the incident during the 'tell' stage. Other options were non-optimal, but not directly dangerous (e.g. updating social media to let others know they were safe at the 'tell' stage). Response options were presented in a grid format, with the order of statements randomised

within each. Possible response options were 'not at all likely' (coded as a score of 1), 'not very likely' (2), 'uncertain' (3) 'fairly likely' (4), and 'very likely' (5). The full text of the survey is provided as supplemental material.

2.2. Data collection

The survey was conducted over the internet by Lightspeed GMI (GMI), a digital data collection specialist. Each survey used conventional opinion polling methods to reach a demographically representative sample of the adult population of that country. The sample was selected randomly from online panels based on quota targets for age, gender and region. Participants were compensated for their time using a system in which panel members accumulate points that can be exchanged for cash, vouchers or a charity donation. A comprehensive set of quality control checks were put in place to ensure unique and valid data[2]. We also included a comprehension measure to check whether participants could identify the key message as '*Run, Hide, Tell*'. 1953 of the 2002 participants who viewed either the film or leaflet (97.6%) gave the correct response to this question. We did not exclude participants who provided an incorrect response from the analysis on the basis that we would expect mixed levels of attention to a public information campaign in the general population. We did however check that there were no systematic differences between countries to ensure this did not bias our findings ($\chi^2 = 0.02$, $p = 0.88$).

Data was collected between 22 June and 21 July 2016. On the evening of 14 July 2016, an armed man deliberately drove a truck into crowds celebrating Bastille Day in Nice, France killing 86 people and injuring 307. Although the primary weapon was the truck, given the scale

[2] See http://www.lightspeedresearch.com/services/lightspeed-quality-suite/ for more details

of the attack and that the driver fired shots before being killed by the police, we tested to check whether this incident had a significant impact on responses that were submitted after this date. Less than 5% of responses were provided following this event and it had no significant impact on risk perceptions ($M_{pre\text{-}Nice}$ = 2.46, $SD_{pre\text{-}Nice}$ = 1.34, $M_{post\text{-}Nice}$ = 2.37, $SD_{post\text{-}Nice}$ = 1.33, 95% CI (-0.14,0.32); t (3001) = 0.77, p=0.44).

Before beginning the questionnaire, participants were informed about the purpose of the study and that they would be provided with information and questions about terrorist attacks involving firearms or weapons. Anyone who indicated that they had been directly involved in a terrorist incident was excluded from participation. Participants were also provided with full details regarding the way that their data would be collected, stored and used. They were then asked to tick a box to indicate if they would be happy to proceed on this basis. Participants could not proceed beyond this screen without responding to this question and anyone who ticked the box to indicate that they did not wish to proceed were screened out and thanked for their time. The study was approved by the [host institution's] Research Ethics Committee.

2.3. Sample characteristics

The survey was completed by 3003 participants (1500 UK-based and 1503 Danish-based respondents). Of these 1001 (33.3%) were in the control group, 1001 (33.3%) were in the film condition and 1001 (33.3%) were in the leaflet condition. Participants were drawn from GMI UK and Danish panels to obtain a nationally representative sample for each country (based on gender, age and region). Ethnicity and highest educational qualification were also recorded. Full details of sample characteristics are provided as supplemental material in Table A. The association between demographic variables and behavioural intentions at each stage of the scenario are provided as supplemental material in Tables B-D.

2.4. Measures

The perceptual predictor variables measured were trust and coping appraisal (consisting of response efficacy, self-efficacy and response cost). Trust was measured directly using a single item statement '*I trust the police to provide advice that will help keep people safe during a terrorist firearms attack*'. Coping appraisals were measured using six items adapted from Pearce et al. 2013. Response efficacy was measured using two items ($r=0.34$, $p<0.0005$, $\alpha = .51$) to establish if participants thought that following the '*Run, Hide, Tell*' advice would keep them safe or protect others during a terrorist firearms attack (M=3.73, SD=0.79). Self-efficacy was measured using two items ($r=0.60$, $p <0.0005$, $\alpha = .75$) based on participants' views about their perceived capability to follow this advice (M=4.10, SD=0.75). Response cost was measured using two items ($r=0.38$, $p<0.0005$, $\alpha = 0.55$) to establish if participants thought that following this advice would prevent them from helping people they cared about or put those people in danger (M=2.89, SD=0.87).

Given that we have a good theoretical basis to assume that items are measuring the same underlying concepts, it is likely that the relatively low coefficient alpha value for response cost is due to the low number of items in the scale and relatively large standard errors due to the diverse pool of respondents. Alpha values considered to be satisfactory depend on test use and interpretation, but scores of 0.50 and above have been described as acceptable(Schmitt, 1996). However, given the relatively low correlations for items on the Response Efficacy and Response Cost scales we also ran analyses on individual items for these measures to check if this would substantially alter the results. We did not find any major differences in using the individual items vs. using the scales (see Tables E and F in the supplemental materials). All predictor variables used a five-point response format. Possible options were 'strongly

disagree' (coded as a score of 1), 'tend to disagree' (2), 'neither agree nor disagree' (3), 'tend to agree' (4), and 'strongly agree' (5). Participants were also offered a 'don't know' option (coded as missing data). This response format was also used to measure perceptions about the risks of terrorist firearms attacks and about security services' preparedness to respond to such an attack.

As we were interested in testing the impact of '*Run, Hide, Tell*' campaign on the likelihood of adopting protective behaviours (i.e. we wanted to be able to directly compare those who intended behaviours with those who did not), 'uncertain' and 'don't know' responses were excluded from the analysis and coded as missing data. Behavioural outcome measures were therefore re-coded into binary variables, with 'not at all likely' and 'not very likely' given a value of 0 (not likely), and 'fairly likely' and 'very likely' given a value of 1 (likely). In addition, responses were categorised as 'protective behaviours' if they had a score of 'fairly likely' or 'very likely' for the recommended behaviour at each stage and 'not at all likely' or 'not very likely' for behaviours that would be most likely to put themselves or others in danger. This provided a more conservative measure of intended compliance than direct responses to statements that matched the instructions that were given in the '*Run, Hide, Tell'* guidance.

ANOVA tests were employed to examine the impact of messages on perceptions about terrorism and the security services to test hypotheses 1 and 2. Chi-squared tests were used to examine the associations between information received and behavioural intentions to test hypotheses 3 and 4. Logistic regression analyses were used to test the impact of trust and PMT factors on willingness to follow '*Run, Hide, Tell'* guidance (hypotheses 5 and 6) and to examine national differences in behavioural intentions, adjusting for demographic and perception variables that were significantly different between countries. T-tests and Chi-

squared tests were used to examine national differences in demographic features and perception variables.

3. RESULTS

3.1. Impact of guidance on perceptions about terrorism and security services

Table I shows that despite differences in perceptions about terrorism, information provision has broadly the same impact across national context. Specifically, the provision of information, irrespective of mode of delivery, does not increase the perceived likelihood of a terrorist firearms attack occurring or increase the perceived personal risk posed by this type of attack. In fact, in a UK context the provision of information significantly reduced the perceived personal risk from this type of attack ($M_{control}$ = 2.56, $M_{leaflet}$=2.42, M_{film}=2.38, $F_{(2, 1378)}$=4.18, p=0.02). It also shows cross-national consistency in relation to the role of information in enhancing the perception that security services are well prepared to respond to terrorist firearms attacks (p<0.0005) and increasing trust in the police to provide advice that will help keep the public safe (p≤0.004).

Bonferroni post-hoc tests found that both leaflet and film interventions enhanced UK perceptions of security services' preparedness (p=0.009 for leaflet vs. control, p<0.0005 for film vs. control) and trust in police advice (p<0.0005 for both leaflet and film in comparison with the control group), but mode of delivery had no impact (all p values >0.05 for leaflet and film comparisons for both variables). Similarly, both types of information provision significantly enhanced Danish perceptions of security services' preparedness to respond (p=0.006 for leaflet vs. control, p<0.0005 for film vs. control) and trust in police advice (p=0.03 for leaflet vs. control and p=0.006 for film vs. control), but there were no significant differences between information conditions (p>0.05 for leaflet vs. film comparisons for both

variables). The impact of information provision in lowering perceived personal risk amongst UK participants was limited to the film condition (p=0.02) as there was no significant difference in perceived personal risk between the leaflet and control conditions (p=0.09).

3.2. Association between information received and behavioural intentions during MTFA

Tables II-IV show associations between information received and behavioural intentions at each stage of the scenario. UK and Danish results are presented together for ease of discussion, as cross-national comparisons found that information provision had the same overall impact on the adoption of protective behaviours at all three stages of the scenario irrespective of national context. National comparisons of results at each stage of the scenario are provided as supplemental material in Tables G-I.

Table II shows that information provision had a significant impact on behavioural intentions for all response options during the 'run' stage of the scenario (all p values ≤0.01). The most common intention in the film condition (88.9%) was to identify a safe route and then run away from the direction of the attack (the recommended behaviour). The most frequent reaction in the leaflet condition (85.8%) was to immediately run to find a hiding place, although 83.3% also indicated an intention to adopt the recommended behaviour. Participants in the control condition were most likely to immediately run to find a hiding place (78.8%) or run into the store to look for their shopping companion (77.9%). However, even without guidance, the majority of participants (76.1%) in the control group intended the recommended behaviour.

Information provision was most effective in relation to reducing potentially dangerous behaviours, with significantly fewer participants intending to immediately run to look for their shopping companion in both the leaflet condition (χ^2 = 20.42, P<0.0005) and film condition

(χ^2 = 77.74, P<0.0005) in comparison with the control group. The film had significantly more impact than the leaflet (χ^2 = 18.78, P<0.0005). Both interventions also reduced intention to wait in place, with significantly fewer participants in both the leaflet condition (χ^2 = 36.05, P<0.005) and film condition (χ^2 = 35.53, P<0.0005) reporting that they would be likely to wait for their friend or family member than in the control condition. There was no significant difference between the leaflet and film condition in relation to intended waiting behaviour.

The positive impact of pre-event guidance on behavioural intentions during the 'run' stage of the scenario is demonstrated by the 'protective behaviours' measure, with more than twice as many participants in the film condition reporting they would be likely to adopt the recommended behaviour but unlikely to carry out either of the most obviously risky behaviours (waiting in place or going to look for their shopping companion) in comparison with the control group (40.4% vs. 19.3%). Pairwise comparisons show that significantly more participants in both the leaflet condition (χ^2 = 46.01, P<0.0005) and film condition (χ^2 = 106.26, P<0.0005) demonstrated this pattern in comparison with the control group. However, the film had a significantly more positive impact than the leaflet condition (χ^2 = 13.12, P<0.0005).

Table III shows that information provision also had a significant impact on behavioural intentions for all response options during the 'hide' stage of the scenario (all p values <0.0005). As at the 'run' stage, a large proportion of respondents in all conditions indicated that they would be likely to adopt the recommended behaviour at this stage (i.e. they would turn their phone onto silent and turn vibration off). This was the most common intention in the film condition, with 93.5% of participants who viewed the film indicating they would adopt the recommended behaviour; significantly higher than both the leaflet condition (χ^2 = 21.65, P<0.0005) and the control condition (χ^2 = 48.97, P<0.0005).

At this stage a very large proportion of participants in all conditions indicated that they would be likely to immediately call the police (90.4% in the control condition, 91.9% in the leaflet condition, and 83.4% in the film condition); an action that could be potentially dangerous if they were hiding in a place where they could be overheard. Significantly fewer participants who viewed the film intended to do this than participants in either the leaflet condition (χ^2 = 27.51, P<0.0005) and the control condition (χ^2 = 17.47, P<0.0005). However, the leaflet had no impact on this intention.

Whilst fewer participants reported they would be likely to call a friend or family member, this was nonetheless a majority intention amongst those who did not receive any guidance (59.7%) and a substantial minority in both the leaflet condition (46.5%) and film condition (40.4%) also reported they would be likely to do this. However, significantly fewer participants in the leaflet condition than in the control condition reported that they would immediately call a friend or family (χ^2 = 26.82, P<0.0005) and participants in the film condition were not only significantly less likely than participants in the control group to report this behaviour (χ^2 = 57.44, P<0.0005), but also less likely than participants in the leaflet condition (χ^2 = 5.91, p=0.02).

A measure of 'protective behaviours' (based on participants who indicated they would be likely to turn their phone onto silent and turn off vibration but would be unlikely to take the least self-protective action of making a phone call to either the police or a loved one) shows substantially reduced intention to adopt protective behaviours in comparison with the 'run' stage. Approximately half as many participants in the control and film conditions intended protective behaviours at the 'hide' stage (10.7% vs. 19.3% and 21.9% vs. 40.4% respectively) and approximately a third of participants in the leaflet condition intended only the most

protective behaviours in comparison with the 'run' stage (11.2% vs. 32.6%). Pairwise comparisons show that the leaflet had no positive impact on protective behaviours during the 'hide' stage of the scenario, although participants in the film condition were significantly more likely to follow this pattern than participants in both the leaflet condition (χ^2 = 41.44, P<0.0005) and the control condition (χ^2 = 45.96, P<0.0005).

Table IV shows that information provision also had a significant impact on behavioural intentions for all response options during the 'tell' stage of the scenario (all p values $p \leq 0.004$). As at previous stages, a large proportion of respondents in all conditions reported an intention to adopt the recommended behaviour at this stage (call the police). Information provision increased this intention, with significantly more participants in both the leaflet condition (χ^2 = 8.26, P=0.004) and film condition (χ^2 = 6.69, P=0.01) intending this behaviour than in the control condition. There was no significant difference between intervention conditions. However, this was the most likely response in all conditions with very high numbers reporting they would call the police irrespective of guidance (94.5% in the control condition, 97.2% in the leaflet condition, and 96.9% in the film condition).

Where the provision of guidance had most impact at this stage was in relation to reducing intention to try to contact a friend or family member who might still be inside the shopping centre (from 74.2% in the control condition to 55% in the leaflet and 40.6% in the film condition). Significantly fewer participants in both the leaflet condition (χ^2 = 59.88, P<0.0005) and film condition (χ^2 = 174.49, P<0.0005) reported an intention to attempt this potentially life-threatening action in comparison with the control group. The film was however more effective at reducing this behaviour than the leaflet, with significantly fewer participants who

viewed the film reporting they would be likely to call or text their shopping companion in comparison with the leaflet condition (χ^2 = 30.93, P<0.0005).

The very high percentage of participants who would instinctively call the police on escaping the shopping centre coupled with the effectiveness of guidance in countering the instinct to call someone who might still be caught up in the event is reflected in the fact that it is only at the 'tell' stage of the scenario that a majority of participants who received guidance (50.7% in the leaflet condition and 62.2% in the film condition) demonstrated a protective pattern of behavioural intentions. Significantly more participants in the leaflet condition intended protective behaviours than in the control condition (χ^2 = 65.03, P<0.0005), and significantly more participants in the film condition responded this way than in both the leaflet condition (χ^2 = 26.88, P<0.0005) and the control condition (χ^2 = 171.92, P<0.0005).

3.3. Impact of trust and coping appraisals on intention to follow guidance and adopt protective health behaviours

Table V shows associations between predictor variables and intention to follow recommendations and adopt protective health behaviours at each stage of the scenario for all participants who viewed '*Run, Hide, Tell*' guidance (i.e. participants in conditions 2 and 3). It also shows associations adjusted for condition (leaflet vs. film) and for all significant demographic and predictor variables.

When considered in isolation, trust, response efficacy and self-efficacy were positively associated with intention to undertake the recommended behaviour at all three stages of the scenario (all p values <0.05). Response cost was negatively associated with intention to follow recommended behaviours at both the 'run' stage (odds ratio 0.62, 95% confidence interval 0.53-0.74) and the 'hide' stage (odds ratio 0.65, 95% confidence interval 0.54-0.78), but not

at the 'tell' stage, although once non-protective behaviours were taken into consideration it did have a significant effect (odds ratio 0.78, 95% confidence interval 0.70-0.87). At the 'run' stage, binary logistic regressions found that all predictor variables were significantly associated with the more conservative measure of intention to adopt protective behaviours, which took into consideration those who also indicated that they might be likely to undertake non-protective behaviours. However, at the 'hide' stage only response cost had a significant impact (odds ratio 0.82, 95% confidence interval 0.71-0.94). At the 'tell' stage, all coping appraisals (response efficacy (odds ratio 1.14, 95% confidence interval 1.01-1.28), self-efficacy (odds ratio 1.21, 95% confidence interval 1.07-1.37) and response cost (odds ratio 0.78, 95% confidence interval 0.70-0.87)) had a significant impact on intention to adopt protective behaviours in the expected direction, but trust was not a significant predictor.

Logistic regression analysis was also used to investigate whether response cost might moderate the impact of self- and response efficacy on intention to follow '*Run, Hide, Tell'* guidance and adopt protective behaviours at each stage of the scenario (see supplemental materials Tables J-U). The effects of self- and response-efficacy on intention to adopt protective behaviours are moderated by response cost at all three stages of the scenario (all $p<0.05$) in the expected direction. Response cost also moderates the influence of self-efficacy on intention to follow the recommended behaviour at the 'run' stage (β=-.08, SE=0.02, OR=0.93, p=0.001) and at the 'hide' stage (β=-0.08, SE=0.03, OR=0.93, p=0.006). It also moderates the influence of response efficacy on intention to follow the recommended behaviour at both the 'run' stage (β=-0.08, SE=0.03, OR=0.93, p=0.002) and at the 'hide' stage (β=-0.08, SE=0.02, OR=0.93, $p<0.0005$).

Taking into consideration the impact of other significant predictors, demographics and condition, trust was no longer a significant predictor of intention to follow guidance at any stage of the scenario. Response efficacy (adjusted odds ratio 1.42, 95% confidence interval 1.13-1.80), self-efficacy (adjusted odds ratio 1.40, 95% confidence interval 1.12-1.76) and response cost (adjusted odds ratio 0.73, 95% confidence interval 0.60-0.89) all predicted intention to follow the recommended behaviour at the 'run' stage of the scenario. For self-efficacy (adjusted odds ratio 1.35, 95% confidence interval 1.15-1.59) and response cost (adjusted odds ratio 0.75, 95% confidence interval 0.66-0.84) this effect also held for the more conservative measure of protective health behaviours. At the 'hide' stage self-efficacy (adjusted odds ratio 1.82, 95% confidence interval 1.42-2.33) and response cost (adjusted odds ratio 0.76, 95% confidence interval 0.61-0.94) predicted intention to follow the recommended behaviour of switching mobile phones to silent mode. However, only response cost remained a significant predictor when looking at overall patterns of protective behaviours (adjusted odds ratio 0.85, 95% confidence interval 0.74-0.99). Response cost continued to predict intention to adopt protective health behaviours at the 'tell' stage (adjusted odds ratio 0.79, 95% confidence interval 0.71-0.89).

Backwards logistic regression analyses (see supplemental materials Tables V-X) found that the most important predictors of intention to adopt protective behaviours at the 'run' stage are self-efficacy and country, with increased self-efficacy and being English both associated with 1.41 times higher odds of intending this pattern of behaviours (95% confidence interval 1.22-1.63 for country and 1.15-1.73 for self-efficacy). Age and information type also play a role at this stage, with intention to adopt protective behaviours increasing with age (odds ratio 1.01, 95% confidence interval 1.01-1.02) and more likely for those who viewed the film rather than the leaflet (odds ratio 0.79, 95% confidence interval 0.65-0.97). The impact of information

type and age held at the 'hide stage', but the only significant perceptual predictor remaining in the model at this stage was response cost, which as expected was negatively associated with intention to adopt protective health behaviours (odds ratio 0.84, 95% confidence interval 0.72-0.98). At the 'tell' stage there were two significant predictors in the best-fit model: condition and response cost. Consistent with previous stages, people who viewed the film were more likely to intend protective behaviours (odds ratio 0.65, 95% confidence interval 0.53-0.79) and people who scored highly on response cost were less likely to intend these behaviours (odds ratio 0.81, 95% confidence interval 0.72-0.91).

3.4. National differences in intended responses to MTFAs

Cross national comparisons of demographic and perception variables are provided in Table VI. There were significant educational differences between UK and Danish participants (χ^2 =279.58, p<0.01), with Danish participants tending towards higher educational qualifications. Danish participants demonstrated significantly more trust in police advice (M_{UK} = 3.96, SD_{UK} =0.94, M_{DK}=4.05, SD_{DK}=0.89, CI (-0.65,-0.03); t (2925) = -2.93, p = 0.003) and also had more confidence that following this advice would keep themselves safe and protect others (M_{UK} = 3.58, SD_{UK} =0.80, M_{DK}=3.87, SD_{DK}=0.75, CI (-0.36,-0.22); t = -8.09 (1830), p <0.0005). UK participants scored higher on perceived personal risk from terrorist firearms attacks (M_{UK} = 2.45, SD_{UK} =1.02, M_{DK}=2.02, SD_{DK}=0.99, CI (0.36,0.51); t (2808) = 11.52, p <0.0005 equal variances not assumed).

Table VII shows associations between country and behavioural intentions across all three stages, adjusted for demographic and perception variables that were significantly different between countries. Taking these differences into account, UK participants remained significantly more likely to intend protective behaviours at the 'run' stage (adjusted odds ratio

1.53, 95% confidence interval 1.25-1.87), having 2.81 times higher odds of intending to adopt the recommended behaviour at this stage (95% confidence interval 2.03-3.90). Although UK participants were also more likely to intend the recommended behaviour at the 'hide' stage (adjusted odds ratio 1.84, 95% confidence interval 1.28-2.64), there was overall no difference between countries when looking at protective behaviours at this stage. Country also had no impact on protective behavioural choices at the 'tell' stage of the scenario.

4. DISCUSSION

In support of Hypothesis 1, this study demonstrates that it is possible to communicate with the general public in advance of a terrorist event without elevating risk perceptions. In fact, these results suggest that pre-event communication has the potential to be associated with lower risk perceptions. This is consistent with research which contends that assumed public over-response is inaccurate (Rogers & Pearce, 2013; Sheppard et al., 2006). This is important as concern about scaring the public can reduce intention to communicate (Glass & Schoch-Spana, 2002) and a lack of information can contribute to heightened risk perceptions (Sheppard et al., 2006). Furthermore, in supporting Hypothesis 2 these results also demonstrate that pre-event communication has the potential to enhance public perceptions of security services' preparedness to respond to terrorist attacks and trust that the police can provide advice that will help keep people safe during an attack. This latter function is particularly important as trust is well established as an influential factor in public willingness to follow official advice during terrorist attacks (Rogers et al., 2007; Rogers & Pearce, 2013).

In terms of the behavioural impact of the *'Run, Hide, Tell'* campaign, our results are largely supportive of the hypothesis that it will increase the intention to adopt protective health behaviours in response to an MTFA scenario. In fact, twice as many participants in the film

condition as the control condition intended protective behaviours across all three stages. However, this guidance was least effective in reducing potentially risky behaviours during the 'hide' stage, mainly due to the large proportion of participants intending to immediately call the police once they had found a place to hide. Whilst the extent to which this is dangerous depends on where an individual is hiding (something that was not specified in our scenario), this does suggest that the guidance could potentially be clearer with regards to the need to avoid making calls unless certain this will not alert the perpetrator(s). Furthermore, whilst problematic behaviours were significantly reduced by the guidance, they were still intended by large numbers of participants and it was only at the 'tell' stage that protective behaviours moved from being a minority intention in the control condition to a majority intention in the intervention conditions.

Whilst, as hypothesised, the data shows that the leaflet intervention had a positive impact, it was significantly less effective than the film intervention. This could be explained by the fact that film is a more engaging mode of delivery. However, given that previous research supports the use of leaflets for the provision of protective health advice (Beaujean et al., 2016), this is more likely due to the fact that the *'Run, Hide, Tell'* leaflet provides substantially less information explaining the rationale behind the recommended actions; an approach that has been described as key for communicating with the public in the context of extreme events. This omission is at least in part due to the fact that a large percentage of the leaflet focuses on providing reassurance that terrorist attacks of this nature are rare and that the police are well prepared to respond. Further research is required to establish whether this level of reassurance is required, but in light of the lack of evidence for public over-reaction (Proulx & Fahy, 2003; Sheppard et al., 2006) it is likely that this space could be more effectively used for the provision of more detailed actionable guidance.

Data from the current survey is also consistent with previous research regarding the influence of coping appraisals on behavioural responses to other types of public health emergency (Pearce, Rubin, Amlot, et al., 2013; Teasdale et al., 2012), suggesting that Protection Motivation Theory predictions hold in the context of MTFAs. However, we found only partial support for the role of trust, which had a significant impact on intention to follow recommended actions when considered in isolation but did not have predictive value when coping appraisals were taken into consideration. Although coping appraisals were associated with recommended behaviours at all stages and protective behaviours at the 'run' and 'tell' stages, response cost was the only factor that was significantly associated with protective behaviours at all three stages. Furthermore, whilst response efficacy and self-efficacy were generally high, their impact was moderated by response cost and there was a lot less certainty regarding the response costs associated with this advice. Given the particularly important role that response cost plays in intention to adopt protective behaviours it is imperative that future campaigns address the perceived costs associated with this advice.

Cross-national comparisons demonstrated that UK participants were more likely to intend recommended behaviours at all three stages. However, taking into consideration overall patterns of responses, it was only at the 'run' stage that there were national differences, with a greater propensity for UK participants to intend protective behaviours. This difference was driven by the fact that UK participants were less likely to intend looking for their shopping companion before trying to escape. There was no difference in perceived trust, self-efficacy or response costs between countries. As might be expected from the distinct experiences of terrorism in the UK and Denmark, there were, however, differences in perceived personal risk with lower levels of perceived risk amongst Danish participants. There were also significant differences in perceived response efficacy, with Danish respondents demonstrating more

confidence in the efficacy of the *'Run, Hide, Tell'* advice. Importantly, despite baseline national differences, the impact of communication was remarkably consistent, not only in relation to increasing confidence in security services' preparedness and trust in police advice, but also in its impact on behavioural intentions across all three stages. These results therefore demonstrate many similarities in response which indicate that this type of guidance is likely to be suitable for use in different national contexts.

4.1. Methodological limitations

The results of this study are based on the measurement of behavioural intentions rather than objectively measured behaviour. Although behavioural intentions are a key determinant of behaviour (Ajzen & Fishbein, 1980), other factors including social reaction, habitual and volitional control are also likely to influence the extent to which behaviour is consistent with intentions (Webb & Sheeran, 2006). Furthermore, this survey experiment employed a hypothetical scenario to test immediate responses to the '*Run, Hide, Tell'* guidance. Consequently, it is difficult to ascertain whether these results accurately reflect behaviours that would be exhibited during a real attack. Findings of scenario based research need to be confirmed by studies conducted on actual incidents and with longer-term follow up studies, but the use of this approach for low likelihood high impact events is well established (Becker, 2004; Henderson, Henderson, Raskob, & Boatright, 2004; Pearce, Rubin, Amlot, et al., 2013; Pearce, Rubin, Selke, et al., 2013; Rogers, Amlot, & Rubin, 2013; Rubin, Chowdhury, & Amlot, 2012). Furthermore, the consistency of our findings with perceptions and behaviours identified in response to real incidents support the suitability of this approach (Rubin, Amlôt, Page, & Wessely, 2009; Rubin, Brewin, Greenberg, Simpson, & Wessely, 2005).

As with all survey studies, the use of self-report data mean that results might be subject to social desirability bias. However, there is substantial evidence that self-administered online surveys are likely to produce more truthful responses to sensitive questions than face-to-face interviews or telephone surveys (Ornstein, 2013). Furthermore, including a more conservative 'protective behaviour' measure offsets the apparently high levels of compliance with guidance suggested if recommended behaviours are considered in isolation. This prevents an overstatement of public intention to adopt protective behaviours in the event of an MTFA.

A further potential limitation of all survey studies is the issue of sample bias. People who volunteer for research are likely to differ from the general population in relation to factors such as educational levels and lifestyle (Ebrahim, 1978). Additionally, despite using a quota sampling procedure to ensure participants were demographically representative for each country, the use of an online survey means that individuals without internet access were excluded from this sample. This issue may have been intensified by different response styles in the UK and Denmark. However, the general consistency in responses across countries suggest that culturally specific response biases are unlikely to have had a major impact.

5. CONCLUSIONS

This study demonstrated a number of important benefits of communicating with the public to prepare them to respond to terrorist attacks involving firearms. In particular, the potential for pre-event communications to enhance perceptions of security services' preparedness to respond and increase trust in official guidance during an incident. It also supports the contention that the assumption of public panic is empirically inaccurate. These results indicate that this type of communication campaign can positively influence intended

behaviours in relation to encouraging actions that could save lives and discouraging non-protective behaviours. However, these findings also suggest a number of ways in which *'Run, Hide, Tell'* guidance could be more effectively conveyed. In particular, future campaigns would benefit from addressing perceived response costs associated with following official guidance and targeting intuitive behaviours that are potentially dangerous. Furthermore, unless the leaflet is changed to include more actionable advice the film is a more effective means of communication. Similarities in the impact of the *'Run, Hide, Tell'* guidance in the UK and Denmark suggest that this type of guidance could be adapted for use in other countries.

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Table I: Means (SDs) for perceptions about terrorism and security services for each country by condition

Perception variables	Country	Information provision (condition)			Sig
		Control	Leaflet	Film	
It is highly like the UK/DK will experience a terrorist firearms attack in the next 5 years	UK	4.01 (0.98) *n=477*[a]	4.01 (1.02) *n=467*[a]	4.03 (1.07) *n=471*[a]	$F_{(2,1412)}$=0.07, p=0.93
	DK	3.82 (0.99) *n=485*[a]	3.77 (1.03) *n=475*[a]	3.81 (0.99) *n=470*[a]	$F_{(2,1427)}$=0.30, p=0.74
I am personally at risk from terrorist firearms attacks	UK	2.56 (1.07) *n=466*[a]	2.42 (0.97) *n=459*[a]	2.38 (1.00) *n=456*[a]	$F_{(2, 1378)}$=4.18, p=0.02
	DK	2.06 (1.00) *n=484*[a]	1.98 (1.01) *n=483*[a]	2.01 (0.98) *n=476*[a]	$F_{(2,1440)}$=0.93, p=0.40
The security services are well prepared to respond to terrorist firearms attacks	UK	3.71 (0.92) *n=471*[a]	3.89 (0.95) *n=469*[a]	3.95 (0.90) *n=478*[a]	$F_{(2, 1415)}$=8.76, p<0.0005
	DK	3.51 (0.92) *n=444*[a]	3.71 (0.94) *n=452*[a]	3.82 (0.96) *n=465*[a]	$F_{(2,1358)}$=12.04, p<0.0005
I trust the police to provide advice that will help keep people safe during a terrorist firearms attack	UK	3.77 (0.97) *n=484*[a]	4.01 (0.93) *n=484*[a]	4.08 (0.90) *n=490*[a]	$F_{(2, 1455)}$=14.65, p<0.0005
	DK	3.95 (0.89) *n=492*[a]	4.09 (0.87) *n=489*[a]	4.12 (0.90) *n=488*[a]	$F_{(2,1466)}$=5.54, p=0.004

[a]n values <500 per condition are due to 'don't know' responses being coded as missing data

Table II: Frequencies (percentages) for behavioural intentions during RUN stage by condition

Behavioural intention	Information provision (condition)			Sig
	Control	Leaflet	Film	
Identify a safe route and then run:	*(n=686)*[a]	*(n=766)*[a]	*(n=827)*[a]	
Not likely	164 (23.9%)	128 (16.7%)	92 (11.1%)	$\chi^2 = 43.74$, p <0.0005
Likely	522 (76.1%)	638 (83.3%)	735 (88.9%)	
Immediately run towards exit:	*(n=656)*[a]	*(n=684)*[a]	*(n=698)*[a]	
Not likely	273 (41.6%)	233 (34.1%)	249 (35.7%)	$\chi^2 = 9.05$, p = 0.01
Likely	383 (58.4%)	451 (65.9%)	449 (64.3%)	
Immediately run to look for companion:	*(n=747)*[a]	*(n=731)*[a]	*(n=747)*[a]	
Not likely	165 (22.1%)	238 (32.6%)	325 (43.5%)	$\chi^2 = 77.85$, p < 0.0005
Likely	582 (77.9%)	493 (67.4%)	422 (56.5%)	
Immediately run to find a hiding place:	*(n=707)*[a]	*(n=763)*[a]	*(n=755)*[a]	
Not likely	150 (21.2%)	108 (14.2%)	130 (17.2%)	$\chi^2 = 12.75$, p = 0.002
Likely	557 (78.8%)	655 (85.8%)	625 (82.8%)	
Wait for companion:	*(n=715)*[a]	*(n=695)*[a]	*(n=724)*[a]	
Not likely	407 (56.9%)	502 (72.2%)	521 (72.0%)	$\chi^2 = 49.50$, p < 0.0005
Likely	308 (43.1%)	193 (27.8%)	203 (28.0%)	
Protective behaviours:	*(n=1001)*	*(n=1001)*	*(n=1001)*	
Not intended	808 (80.7%)	675 (67.4%)	597 (59.6%)	$\chi^2 = 106.83$, p <0.0005
Intended	193 (19.3%)	326 (32.6%)	404 (40.4%)	

[a]n values <1001 per condition are due to 'no opinion' and 'don't know' responses being coded as missing data

Table III: Frequencies (percentages) for behavioural intentions during HIDE stage by condition

Behavioural intention	Information presented (condition)			Sig
	Control	Leaflet	Film	
Turn phone onto silent / turn off vibration:	*(n=799)*[a]	*(n=818)*[a]	*(n=877)*[a]	
Not likely	140 (17.5%)	108 (13.2%)	57 (6.5%)	$\chi^2 = 48.40$, p <0.0005
Likely	659 (82.5%)	710 (86.8%)	820 (93.5%)	
Immediately call the police:	*(n=822)*[a]	*(n=829)*[a]	*(n=821)*[a]	
Not likely	79 (9.6%)	67 (8.1%)	136 (16.6%)	$\chi^2 = 33.31$, p <0.0005
Likely	743 (90.4%)	762 (91.9%)	685 (83.4%)	
Immediately call friend or family:	*(n=771)*[a]	*(n=774)*[a]	*(n=775)*[a]	
Not likely	311 (40.3%)	414 (53.5%)	462 (59.6%)	$\chi^2 = 59.99$, p <0.0005
Likely	460 (59.7%)	360 (46.5%)	313 (40.4%)	
Immediately text friend or family:	*(n=819)*[a]	*(n=800)*[a]	*(n=811)*[a]	
Not likely	217 (26.5%)	295 (36.9%)	264 (32.6%)	$\chi^2 = 20.27$, p <0.0005
Likely	602 (73.5%)	505 (63.1%)	547 (67.4%)	
Turn your phone off and keep quiet:	*(n=706)*[a]	*(n=741)*[a]	*(n=788)*[a]	
Not likely	387 (54.8%)	365 (49.3%)	264 (33.5%)	$\chi^2 = 74.68$, p <0.0005
Likely	319 (45.2%)	376 (50.7%)	524 (66.5%)	
Protective behaviours:	*(n=1001)*	*(n=1001)*	*(n=1001)*	
Not intended	894 (89.3%)	889 (88.8%)	782 (78.1%)	$\chi^2 = 64.20$, p <0.0005
Intended	107 (10.7%)	112 (11.2%)	219 (21.9%)	

[a]n values <1001 per condition are due to 'no opinion' and 'don't know' responses being coded as missing data

Table IV: Frequencies (percentages) for behavioural intentions during TELL stage by condition

Behavioural intention	Information presented (condition)			Sig
	Control	Leaflet	Film	
Call police to alert them to event:	*(n=866)* [a]	*(n=891)* [a]	*(n=941)* [a]	
Not likely	48 (5.5%)	25 (2.8%)	29 (3.1%)	$\chi^2 = 10.98$, p = 0.004
Likely	818 (94.5%)	866 (97.2%)	912 (96.9%)	
Let loved ones know you are safe:	*(n=799)* [a]	*(n=805)* [a]	*(n=809)* [a]	
Not likely	112 (14.0%)	146 (18.1%)	194 (24.0%)	$\chi^2 = 26.49$, p <0.0005
Likely	687 (86.0%)	659 (81.9%)	615 (76.0%)	
Try to find out more info about event:	*(n=763)* [a]	*(n=756)* [a]	*(n=755)* [a]	
Not likely	181 (23.7%)	229 (30.3%)	289 (38.3%)	$\chi^2 = 37.87$, p <0.0005
Likely	582 (76.3%)	527 (69.7%)	466 (61.7%)	
Call / text companion in shopping mall:	*(n=753)* [a]	*(n=727)* [a]	*(n=754)* [a]	
Not likely	194 (25.8%)	327 (45.0%)	448 (59.4%)	$\chi^2 = 174.85$, p <0.0005
Likely	559 (74.2%)	400 (55.0%)	306 (40.6%)	
Update social media:	*(n=633)* [a]	*(n=641)* [a]	*(n=726)* [a]	
Not likely	633 (78.7%)	641 (81.0%)	726 (85.2%)	$\chi^2 = 12.01$, p = 0.002
Likely	171 (21.3%)	150 (19.0%)	126 (14.8%)	
Protective behaviours:	*(n=1001)*	*(n=1001)*	*(n=1001)*	
Not intended	671 (67.0%)	493 (49.3%)	378 (37.8%)	$\chi^2 = 174.30$, p <0.0005
Intended	330 (33.0%)	508 (50.7%)	623 (62.2%)	

[a] n values <1001 per condition are due to 'no opinion' and 'don't know' responses being coded as missing data

Table V: Association between perception variables and intention to adopt protective health behaviours at each stage

		Trust 4.08 (0.90)		**Response efficacy** 3.73 (0.79)		**Self-efficacy** 4.10 (0.75)		**Response cost** 2.89 (0.87)	
	Frequency[b] (percentage)	**Odds ratio (95% CI)**	**Adjusted OR[a] (95% CI)**	**Odds ratio (95% CI)**	**Adjusted OR[a] (95% CI)**	**Odds ratio (95% CI)**	**Adjusted OR[a] (95% CI)**	**Odds ratio (95% CI)**	**Adjusted OR[a] (95% CI)**
Stage 1: RUN									
Identify a route then run:									
Not likely	220 (13.8%)	1.21*	0.99	1.55**	1.42**	1.78**	1.40**	0.62**	0.73**
Likely	1373 (86.2%)	(1.05-1.41)	(0.83-1.20)	(1.30-1.85)	(1.13-1.80)	(1.48-2.13)	(1.12-1.76)	(0.53-0.74)	(0.60-0.89)
Protective behaviours:									
Not intended	1272 (63.5%)	1.16**	0.97	1.34**	1.13	1.53**	1.35**	0.64**	0.75**
Intended	730 (36.5%)	(1.04-1.29)	(0.86-1.09)	(1.19-1.52)	(0.97-1.32)	(1.34-1.75)	(1.15-1.59)	(0.57-0.71)	(0.66-0.84)
Stage 2: HIDE									
Phone silent/vibrate off:									
Not likely	165 (9.7%)	1.25**	1.01	1.62**	1.19	2.10**	1.82**	0.65**	0.76*
Likely	1530 (90.3%)	(1.06-1.47)	(0.82-1.24)	(1.33-1.99)	(0.91-1.55)	(1.73-2.56)	(1.42-2.33)	(0.54-0.78)	(0.61-0.94)
Protective behaviours:									
Not intended	1671 (83.5%)	1.01	0.98	0.91	0.86	1.12	1.06	0.82**	0.85*
Intended	331 (16.5%)	(0.88-1.15)	(0.85-1.13)	(0.78-1.06)	(0.73-1.01)	(0.95-1.32)	(0.89-1.26)	(0.71-0.94)	(0.74-0.99)
Stage 3: TELL									
Call the police:									
Not likely	54 (2.9%)	1.50**	1.22	1.69**	1.12	2.35**	1.96**	0.92	1.08
Likely	1778 (97.1%)	(1.17-1.93)	(0.90-1.65)	(1.20-2.38)	(0.74-1.68)	(1.75-3.15)	(1.37-2.82)	(0.67-1.28)	(0.77-1.53)
Protective behaviours:									
Not intended	871 (43.5%)	1.07	0.99	1.14*	1.00	1.21**	1.14	0.78**	0.79**
Intended	1131 (56.5%)	(0.96-1.18)	(0.88-1.11)	(1.01-1.28)	(0.87-1.16)	(1.07-1.37)	(0.98-1.32)	(0.70-0.87)	(0.71-0.89)

[a]Odds ratios adjusted for all variables of interest (predictors, demographics and condition) significantly associated with each outcome

[b]Totals <2002 due to 'no opinion' and 'don't know' responses being coded as missing data

* $p < 0.05$

** $p < 0.01$

Table VI: Cross national comparison of demographic and perception variables

Demographic & perception variables	Country		Sig
	UK [a]Frequency (%) [b]Mean (SD)	Denmark [a]Frequency (%) [b]Mean (SD)	
Sex[a]			
Male	750 (50%)	753 (50.1%)	$\chi^2 = 0.03$, p=0.96
Female	750 (50%)	750 (49.9%)	
Age[a]			
18-24	218 (14.5%)	218 (14.5%)	$\chi^2 = 1.01$, p = 0.60
25-44	624 (41.6%)	600 (39.9%)	
45-65	658 (43.9%)	685 (45.6%)	
Education[a]			
No higher education	743 (49.6%)	423 (28.3%)	$\chi^2 = 279.58$, p <0.001
Vocational qualification	159 (10.6%)	518 (34.6%)	
Degree or higher	595 (39.8%)	555 (37.1%)	
Trust[b]	3.96 (0.94)	4.05 (0.89)	t(2925) = -2.93, p = 0.003
Perceived personal risk from terrorism[b]	2.45 (1.02)	2.02 (0.99)	t(2808)* = 11.52, p <0.0005
Response efficacy[b]	3.58 (0.80)	3.87 (0.75)	t(1830) = -8.09, p <0.0005
Self-efficacy[b]	4.10 (0.75)	4.10 (0.76)	t(1853)= -0.24, p=0.81
Response costs[b]	2.89 (0.90)	2.88 (0.84)	t(1829) = 0.23, p=0.82

*Equal variances not assumed

Table VII: Association between behavioural intentions and country

Behavioural intention		Frequencies (%) UK	Frequencies (%) DK	Odds ratio (95% CI)	Adjusted odds ratio (95% CI)[a]
Stage 1: RUN					
Identify a route then run:	**Not likely**	**136 (11.6%)**	**248 (22.3%)**	**2.19****	**2.81****
	Likely	**1033 (88.4%)**	**862 (77.7%)**	**(1.74-2.74)**	**(2.03-3.90)**
Immediately run to exit:	Not likely	334 (32.6%)	421 (41.6%)	1.47**	1.81**
	Likely	691 (67.4%)	592 (58.4%)	(1.23-1.76)	(1.42-2.32)
Look for companion:	Not likely	392 (36.0%)	336 (29.6%)	0.75**	0.61**
	Likely	697 (64.0%)	800 (70.4%)	(0.63-0.89)	(0.49-0.78)
Run to a hiding place:	Not likely	206 (19.0%)	182 (16.0%)	0.81	1.10
	Likely	881 (81.0%)	956 (84.0%)	(0.65-1.01)	(0.81-1.49)
Wait for companion:	Not likely	636 (62.9%)	794 (70.7%)	1.42**	1.27
	Likely	375 (37.1%)	329 (29.3%)	(1.19-1.71)	(0.98-1.64)
Protective behaviours:	Not intended	993 (66.2%)	1087 (72.3%)	1.33**	1.53**
	Intended	507 (33.8%)	416 (27.7%)	(1.14-1.56)	(1.25-1.87)
Stage 2: HIDE					
Phone silent/vibrate off:	**Not likely**	**138 (10.9%)**	**167 (13.6%)**	**1.29***	**1.84****
	Likely	**1130 (89.1%)**	**1059 (86.4%)**	**(1.02-1.64)**	**(1.28-2.64)**
Call the police:	Not likely	139 (11.3%)	143 (11.5%)	1.02	1.12
	Likely	1088 (88.7%)	1102 (88.5%)	(0.79-1.30)	(0.81-1.54)
Call friend or family:	Not likely	556 (47.9%)	631 (54.4%)	1.30	1.53**
	Likely	605 (52.1%)	528 (45.6%)	(1.11-1.53)	(1.22-1.90)
Text friend or family:	Not likely	367 (30.0%)	409 (33.9%)	1.20*	1.18
	Likely	857 (70.0%)	797 (66.1%)	(1.01-1.42)	(0.95-1.48)
Phone off / keeping quiet:	Not likely	359 (32.3%)	657 (58.5%)	2.96**	2.67**
	Likely	753 (67.7%)	466 (41.5%)	(2.49-3.52)	(2.12-3.36)
Protective behaviours:	Not intended	1263 (84.2%)	1302 (86.6%)	1.22	1.26
	Intended	237 (15.8%)	201 (13.4%)	(0.99-1.49)	(0.97-1.63)
Stage 3: TELL					
Call the police:	**Not likely**	**44 (3.3%)**	**58 (4.3%)**	**1.34**	**1.76**
	Likely	**1309 (96.7%)**	**1287 (95.7%)**	**(0.90-2.00)**	**(0.97-3.18)**
Contact loved ones:	Not likely	224 (18.7%)	228 (18.7%)	1.00	0.94
	Likely	972 (81.3%)	989 (81.3%)	(0.82-1.23)	(0.73-1.22)
Seek more information:	Not likely	366 (32.4%)	333 (29.1%)	0.86	0.82
	Likely	764 (67.6%)	811 (70.9%)	(0.72-1.02)	(0.65-1.04)
Call/text companion:	Not likely	460 (41.8%)	509 (44.9%)	1.14	1.11
	Likely	641 (58.2%)	624 (55.1%)	(0.96-1.34)	(0.89-1.39)
Update social media:	Not likely	975 (79.3%)	1025 (84.2%)	1.38**	1.42*
	Likely	254 (20.7%)	193 (15.8%)	(1.13-1.70)	(1.07-1.89)
Protective behaviours	Not intended	767 (51.1%)	775 (51.6%)	1.02	1.14
	Intended	733 (48.9%)	728 (48.4%)	(0.88-1.17)	(0.94-1.38)

[a] All odds ratios adjusted for education, trust, perceived personal risk and response efficacy.

* Significant association at the 0.05 level **Significant association at the 0.01 level