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Brief Report: Evidence of Ingroup Bias on the Shooter Task in a Saudi Sample

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Article

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Abstract

When predominantly White participants in Western countries are asked to shoot individuals in a computer game who may carry weapons, they show a greater bias to shoot at outgroup members and people stereotyped as dangerous. The goal was to determine the extent to which shooter biases in the Middle East would vary as a function of target ethnicity and culturally appropriate or inappropriate headgear. Within a sample of 37 male Saudi Arabian residents, we examined shooter biases outside of Western nations for the first time. Targets in this task were either White or Middle Eastern in appearance, and wore either American style baseball caps or a Saudi Arabian style shemagh and igal. Our results replicated the bias to shoot racial outgroup members observed in Western samples; we found a bias to shoot White over Middle Eastern targets. Unexpectedly, we also found a bias for Saudi participants to shoot at people wearing culturally appropriate traditional Saudi headgear over Western style baseball caps. To explain this latter finding, we cautiously speculate that relative perceptions of dangerousness in the Middle East may be influenced by media exposure and changing social conditions in the region.

Keywords

race, Middle Eastern, White, weapon, stereotype, headgear, social categorization, shooter bias

Perceiving that dangerous groups of people lurk in your midst can strain intergroup interactions and relations. When predominantly White participants in Western countries are asked to shoot individuals who may carry weapons in computer games, they show a greater bias to shoot at people who are Black than White (Correll, Park, Judd, & Wittenbrink, 2002), Middle Eastern than White (Unkelbach, Forgas, & Denson, 2008), wearing Muslim headgear than those not wearing Muslim headgear (Unkelbach et al., 2008, Unkelbach, Goldenberg, Müller, Sobbe, & Spannaus, 2009), and male than female (Plant, Goplen, & Kunstman, 2011). Thus, when presented with targets from distinct social categories, people display the greatest shooter bias toward outgroup members and members of the categories stereotyped as relatively more dangerous. The aim of the present research was to quantify the extent to which ethnic group membership and culturally appropriate or inappropriate headgear would influence perceptions of dangerousness by people living in the Middle East.

Past research on the shooter bias has exclusively examined Western cultures (i.e., North America, Western Europe, and Australia). Consistent with the strong stereotypes that Black men are dangerous (Devine, 1989), the original shooter bias research found that both Black and White Americans displayed a bias to shoot Black targets over White targets (Correll et al., 2002). Prior research has reliably shown that

perceived danger (in addition to ingroup bias) plays a critical role in biases to shoot (Correll, Urland, & Ito, 2006; Correll, Wittenbrink, Park, Judd, & Goyle, 2011; Miller, Zielaskowski, & Plant, 2012). For instance, participants show a greater bias to shoot targets superimposed on dangerous compared with safe backgrounds (Correll et al., 2011). Western participants also show a stronger neural marker of threat (P200) to Black than White faces in the shooter task (Correll et al., 2006). Individuals who believe that the world is a dangerous place even shoot at outgroup members not stereotyped as dangerous more than ingroup members (Miller et al., 2012). Moreover, the shooter bias is not solely attributable to simple outgroup bias because Black Americans shoot more at Black than White targets, and men shoot more at male than female targets (Correll et al., 2002; Kahn & Davies, 2010; Plant et al., 2011).

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Outgroups are often perceived as dangerous (Stephan & Stephan, 2000). The little attitudinal data from within the Middle Eastern, Arabic, and Islamic world shows that Western outgroups are perceived as dangerous. Muslims, and particularly those Muslims living in non-Western countries, view people in Western countries as violent (Pew Global Attitudes Project, 2006). In fact, Muslims are more likely to view Westerners as violent than Westerners are to view Muslims as violent (Pew Global Attitudes Project, 2011). In line with the previously discussed work showing the dangerousness basis of shooter biases, we expected that Middle Eastern participants would show biases to shoot at targets containing markers of a Western outgroup. In the present research, two distinct markers were used: race and clothing (specifically headgear).

We hypothesized that the race bias (Unkelbach et al., 2008) and headgear bias (Unkelbach et al., 2008; Unkelbach et al., 2009) typically observed in Western nations toward Middle Eastern targets would be reversed in a Saudi Arabian sample. This reversal would be consistent with the perceptions of Westerners as dangerous among Muslims in non-Western countries. More specifically, we hypothesized that Saudi men would display

1. A relatively greater bias for shooting White targets over Middle Eastern targets and
2. A relatively greater bias for shooting those wearing American style baseball caps over those wearing the culturally appropriate shemagh and igaal.

No interaction was hypothesized. Prediction of an interaction would mean that we believed that the meaning of headgear varies by target race (or race by target headgear): While possible, we saw no reason to make this prediction. Both race and headgear should exert independent, additive effects on shooter biases. White race and baseball caps should both be indicative of the outgroup for Saudi participants and therefore induce greater shooter biases.

Method

Participants and Design

Forty-four non-White male residents of the Kingdom of Saudi Arabia participated in the experiment (M_{age} = 22.8 years, SD = 1.4) after giving written informed consent. The study protocols were approved by the department chairman, who was independent from this research project. Participants were reimbursed the equivalent of AU$10 for their participation. An a priori power analysis suggested that 34 participants were required to provide a target power of .80 to detect a medium effect (d = .50) with α set at .05 (Faul, Erdfelder, Lang, & Buchner, 2007). Although power of .80 is conventional, given the rarity of this sample, it was important not to have a Type 2 error, and as such, it was deemed important to recruit as many students as possible in the semester: A sample of 44 participants gives power of .90. Moreover, this sample size assured power of at least .80 after filtering participants. Most of the participants were Middle Eastern (79.5%), some were Asian (typically Pakistani; 9.1%), one reported being of more than one race (2.3%), and some did not report their race (9.1%). Prior large-scale surveys have shown that 97.0% of the Saudi population is Muslim and that 82.2% view cultural invasion by the West as a serious or very serious issue (World Values Survey Association, 2005).

Materials and Procedure

Shooter task. The shooter task was based on the computer game described in Unkelbach et al. (2008) and is similar to the shooter tasks used in other experiments (Correll et al., 2002; Kahn & Davies, 2010; Miller et al., 2012; Plant et al., 2011; Unkelbach et al., 2009). In the shooter task, participants are asked to shoot if an armed person appears but not if an unarmed person appears. In the present task, targets appeared superimposed on one of six randomly selected locations along the balconies of a three-floor apartment building. Three target properties were manipulated within-participants: the presence of a weapon (gun vs. object), target race (White vs. Middle Eastern), and target headgear (Saudi Arabian shemagh and igal vs. American baseball cap).

As per Unkelbach et al. (2008), pictures of prison inmates, sourced from the Florida Department of Correction website (http://www.dc.state.fl.us), were used to manipulate target race. The pictures contained the head and neck only (see Figure 1). Stimuli were 10 men, half of whom were Caucasian and half of whom were non-Caucasian with darker skin. There is no Middle Eastern option in the classification system used by the Florida Department of Corrections. Consistent with Middle Eastern origins, the non-Caucasian targets had been classified as "non-Black" and "non-Asian" by the website. A sample of 38 participants recruited through Amazon's mTurk service confirmed each Middle Eastern and White target was perceived as such. For each Middle Eastern face, the majority of participants classified them as of "Arab/Middle Eastern" origin rather than "East Asian/ South Asian," "Indian," "Black/African," or "European/ Caucasian/White" (lowest: 52.63%, highest: 81.58%). Each White face was classified by the majority of participants as "European/Caucasian/White" (lowest: 94.74%, highest: 100%). Chi-square goodness of fit tests against chance levels (i.e., 20% correct, 80% incorrect) indicated that all faces were recognized as being of the correct race at significantly above chance levels, χ^2s (1, N = 38) ≥ 25.29, ps < .001. Superimposed on each face was either a Saudi Arabian shemagh and igal or an American style baseball cap (depicted in Figure 1). The shemagh is a traditional Arab headdress fashioned from a square scarf. The shemagh is held in place by the igal, which is a black chord that sits atop the head. Superimposed next to each face was a hand holding either a
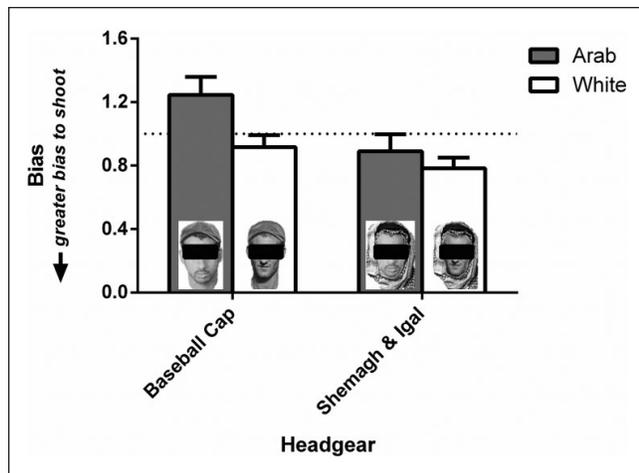
Figure 1. Response bias (β) as a function of target type in Experiment 1.

Note. Lower scores indicate a greater bias for shooting. Higher scores indicate a greater bias against shooting. A score of 1 indicates neither a bias to shoot nor a bias against shooting. Sample stimuli of each target type are presented in the bars and vary by race and headgear (black bars across eyes were not visible during the task). The Saudi headgear consisted of the shemagh (headdress) and igal (black wreath holding shemagh in place). Within-subject error bars ±1 *SE*, calculated within each condition and across all trial types using Cousineau (2005).

Table 1. Raw Means and Standard Errors in the Shooter Task.

	Arab		White	
	Baseball cap	Shemagh and igal	Baseball cap	Shemagh and igal
Hit rate	.89 (.02)	.92 (.01)	.93 (.02)	.91 (.02)
False alarm rate	.14 (.03)	.13 (.02)	.11 (.02)	.15 (.02)

Note. These means are used to calculate the signal detection measures of sensitivity and response bias. Participants hit when they decided to shoot, rather than not shoot, an armed target. Participants made a false alarm when they decided to shoot, rather than not shoot, an unarmed target.

gun (black gun, or silver gun) or a harmless object (black soft-drink bottle, silver thermos; see Unkelbach et al., 2008).

Participants commenced each trial by pressing the space bar. After a 300-ms delay, the background of the three-floor apartment block appeared alone for 600 ms. The target then appeared, and participants had up to 800 ms to decide whether to "shoot" or "not shoot." The correct decision was to shoot suspects carrying guns but not to shoot those carrying objects. Correct decisions scored points, whereas errors subtracted them. The points were weighted such that shooting was favorable over not shooting (Correll et al., 2002). Specifically, correctly shooting an armed target earned 10 points, correctly not shooting an unarmed target earned 5 points, incorrectly shooting an unarmed target deducted 20 points, incorrectly not shooting an armed target deducted 40 points, and being too slow to make a decision deducted 10 points. At the end of each trial, participants were displayed their current points total.

Participants completed eight practice trials with novel targets, before completing 20 trials of each Race × Headgear × Object type combination.

Statistical Analyses

Signal detection theory has been crucial to understanding the decision to shoot (Correll, Hudson, Guillermo, & Ma, 2014), as it allows differences in the respondent's sensitivity to the presence of a gun and their bias to shoot to be modeled separately.

Without signal detection procedures, it is impossible to tell whether an individual who successfully shoots at all armed targets was able to readily discriminate between guns and objects or simply held a bias to make the decision to shoot. Individuals who can readily tell apart the guns and objects are said to be highly sensitive to the presence of a weapon. High sensitivity emerges when participants readily hit armed targets and correctly reject the opportunity to shoot unarmed targets. Sensitivity here is reported as *d'*, with higher scores indicating a better ability to discriminate guns from objects. Individuals who do not require a lot of evidence to shoot are said to have set a low criterion for shooting, that is, they are biased to shoot. We report bias to shoot via the β parameter, with lower scores indicating a bias toward shooting and that less evidence is required for a shoot response.

Measures of *d'* and β were calculated separately for each Race × Headgear combination in line with the formulas published by Stanislaw and Todorov (1999). Summaries of the raw hit rates and false alarm rates used to calculate *d'* and β are presented in Table 1. Because raw hit rates of 1 and false alarm rates of 0 need to be adjusted before signal detection analyses, hit rates of 1 became $1 - (1 / 2n)$, and false alarm rates of 0 became $1 / 2n$, where *n* is the number of on-time responses for that trial type.

For at least one target type, three participants could not discriminate between guns and objects (i.e., $d' \leq 0$), suggesting that these participants were unlikely to be responding based on what the target was carrying. As it is most likely that these participants were responding indiscriminately, these three participants were removed from the analyses. A further four participants scored greater than ±3 *SD*s from a sample β mean, and hence were outliers. Their data were removed from the analyses to prevent the undue influence. None of the reported results change if outlying scores on β means were winsorized to prevent their undue influence instead. Final analyses were conducted using 2 (race: White vs. Middle Eastern) × 2 (headgear: shemagh and igal vs. baseball cap) repeated measures ANOVAs. The weapon factor was not explicitly included in the analysis as it is used to calculate the measures of discrimination and bias.

Table 2. Mean Latencies in the Shooter Task.

	Arab		White	
	Baseball cap	Shemagh and igal	Baseball cap	Shemagh and igal
Hit latency	615.95 (6.31)	614.94 (8.20)	614.88 (6.51)	605.35 (8.72)
CR latency	653.28 (5.88)	659.64 (8.98)	656.95 (5.89)	665.10 (5.94)

Note. CR refers to correct rejections. The numbers in parentheses indicate the standard error of the mean latency.

Results

Shooter Bias

Consistent with Hypothesis 1, participants showed a greater bias to shoot at White targets than Middle Eastern targets, $F(1, 36) = 4.43$, $p = .042$, $\eta_p^2 = .11$ (Figure 1). Contrary to Hypothesis 2, participants were also more biased to shoot at targets wearing the shemagh and igal than targets wearing a baseball cap, $F(1, 36) = 4.48$, $p = .041$, $\eta_p^2 = .11$. The Target Race × Headgear interaction was not significant, $F(1, 36) = 1.18$, $p = .284$, $\eta_p^2 = .03$.

Supplementary analyses. The patterns reported above were internally replicated using (a) a different set of participant inclusion criteria and (b) reaction times. Overall, the supplementary analyses demonstrate internal consistency across cut-offs and methods of analysis in the observed response biases.

A different set of participant inclusion criteria. Rather than filter outliers and those who could not discriminate guns from objects, Unkelbach et al. (2008) excluded participants who failed to respond within the response window more than 20% of the time. Two participants in the present sample met this exclusion criteria; neither of these individuals was filtered in the original analyses. Under these conditions, there was a bias to shoot White targets over Middle Eastern targets, $F(1, 41) = 3.26$, $p = .078$, $\eta_p^2 = .07$, and participants were more biased to shoot at targets wearing the shemagh and igal than targets wearing a baseball cap, $F(1, 41) = 6.06$, $p = .018$, $\eta_p^2 = .13$. There was no interaction, $F(1, 41) = 2.03$, $p = .161$, $\eta_p^2 = .05$.

Reaction times. Faster reaction times indicate a more accessible decision than longer reaction times (see Correll et al., 2014). Latency results consistent with the observed response biases would be either (1) faster *hit* latencies or (2) slower *correct rejection* latencies for (a) White targets than Middle Eastern targets and (b) the shemagh and igal rather than baseball caps. All responses made within the response window were used to calculate participants' mean latencies: These latencies are reported in Table 2. Given the relative infrequency of incorrect latencies (i.e., misses and false alarms), these were not analyzed. Faster hit latencies were

observed for White targets than Middle Eastern targets, $F(1, 36) = 3.25$, $p = .080$, $\eta_p^2 = .08$, but there was no effect of headgear, $F(1, 36) = 2.06$, $p = .164$, $\eta_p^2 = .05$, and no interaction, $F(1, 36) = 1.89$, $p = .171$, $\eta_p^2 = .05$. Slower correct rejection latencies were observed for targets wearing the shemagh and igal than baseball caps, $F(1, 36) = 4.14$, $p = .049$, $\eta_p^2 = .10$, but there was no effect of race, $F(1, 36) = 1.46$, $p = .235$, $\eta_p^2 = .04$, and no interaction, $F(1, 36) = 0.45$, $p = .833$, $\eta_p^2 = .00$. Thus, the reaction time data is consistent with the observed response biases.

Weapon Discrimination

The ability to discern the presence of a weapon was not affected by target race, $F(1, 36) = 1.27$, $p = .268$, $\eta_p^2 = .03$, but was marginally higher when the target wore the shemagh and igal rather than a baseball cap, $F(1, 36) = 3.79$, $p = .059$, $\eta_p^2 = .10$. This was qualified by a significant interaction between target race and headgear, $F(1, 36) = 7.57$, $p = .009$, $\eta_p^2 = .17$. Follow-up comparisons revealed that participants were significantly more sensitive to the presence of guns when the target was White and wearing a baseball cap ($M = 2.92$, $SD = 0.88$) than each other Race × Headgear combination, $Fs(1, 36) \geq 5.41$, $ps \leq .026$, $\eta_p^2 \geq .13$. There were no significant differences in discrimination between the other Race × Headgear combinations (White with shemagh and igal, $M = 2.59$, $SD = 0.95$; Middle Eastern with shemagh and igal, $M = 2.71$, $SD = 0.81$; Middle Eastern with baseball cap, $M = 2.61$, $SD = 1.00$), $Fs(1, 36) \leq 0.77$, $ps \geq .386$, $\eta_p^2 \leq .02$.

Discussion

We found support for Hypothesis 1 (race bias) in that Saudi Arabian men were more likely to shoot at their racial outgroup than ingroup. This pattern of behavior is identical to that observed in racial majorities in Western samples (Correll et al., 2002; Miller et al., 2012; Unkelbach et al., 2008). Contradicting Hypothesis 2 (headgear bias), Saudis unexpectedly displayed greater bias toward shooting targets wearing the shemagh and igal over those wearing baseball caps. This result replicates prior research in which Western participants displayed greater shooter bias toward people wearing Arab headgear (Unkelbach et al., 2008) but failed to support our hypothesised reversal of the effect in Saudi Arabia. The results were internally consistent. Participant inclusion criteria did not alter the conclusions of the study, and reaction-time-based analyses supported the conclusions drawn from the signal detection analyses.

In the present Saudi Arabian sample, we found the hypothesized link between being a member of the racial ingroup and increased likelihood of shooting the racial outgroup member. Although these results may appear intuitive, it must be emphasized that racial biases in non-Western populations have not been the subject of much quantitative investigation. Shooter biases are relative effects and do not necessarily

indicate that White people and the shemagh and igal are perceived as dangerous in absolute terms. Rather, we cautiously speculate that the present findings may indicate that White targets may have been perceived as relatively more dangerous (or less safe) than Middle Eastern targets. Moreover, targets wearing the shemagh and igal may have also been perceived as relatively more dangerous (or less safe) than targets wearing American style baseball caps.

It is important to consider why we may have found the predicted ingroup–outgroup pattern for race but not cultural markers. One possibility for this surprising finding is that it was a Type 1 error: Future research should try to replicate this effect in both Saudi Arabia and the Middle East more broadly. However, given the same pattern emerged in the analyses of response times, it is worth considering non-statistical explanations. The bias toward shooting targets wearing the shemagh and igal more than baseball caps may be a result of favorable shifts toward the Western world or negative shifts away from traditional-conservative values. Young Saudis are increasingly technologically engaged, and Westernized (Samin, 2012) especially in their clothing choices (Assad, 2008). Due to the immutability of race, these social changes should not shift danger and safety perceptions of White targets relative to Middle Eastern targets: however, increasing globalization may have changed perceptions of Western cultural markers relative to traditional Saudi cultural markers of the shemagh and igal.

The alternate possibility is that Saudi clothing is becoming more negatively perceived for the traditional-conservative values it represents. Such a shift could be a result of Saudi Arabian participants internalizing Western media stereotypes about Arabs, Muslims, and/or those from the Middle East. These stereotypes are resoundingly negative, with only 5% of Hollywood films presenting Arabs in normal roles (Shaheen, 2003). Exposure to this type of stereotyped media is known to increase anti-Arab bias in Western samples (Saleem & Anderson, 2013). Consequently, exposure to these Western stereotypes may have resulted in their internalization, and development of an anti-Arab bias among Saudi youth. This process may be similar to Black participants' internalized stereotypes about Blacks explaining their bias to shoot at Black targets (Maddox & Gray, 2002; Plant et al., 2011). Contrary to this explanation, however, are observations of relatively minimal mass demonstrations in Saudi Arabia during Arab spring (Samin, 2012) and the defense of traditional-conservative values on Saudi Internet message boards (Samin, 2008).

In an increasingly globalized society, it is important to know how one's race and culture may be perceived not only at home but also abroad. Due to the Western bias in experimental research on racial hostility, this information had not been previously available. The present findings may be helpful for White people traveling or interacting with people in Middle Eastern countries like Saudi Arabia. For instance, rather than conforming to a culturally normative dress-code, it may be better to dress in a stereotypically Western manner. Furthermore, the present findings provide unique insight into social perception processes that may be affected by the rapidly changing cultural milieu in the Arab world. However, because our study consisted of only male University students, caution must be practiced when generalizing to the broader Saudi population.

Conclusion

Consistent with research in the West, our participants showed a greater bias to shoot at a social outgroup: in this case, White targets. This mirrors the effect shown in Western countries in which participants show a greater bias to shoot Middle Eastern targets (Unkelbach et al., 2008). However, when examining clothing, we found that people wearing culturally appropriate Saudi attire may have been perceived as more dangerous. Our findings highlight the necessity of considering cultural variation in social perceptions of social categories.

Authors' Note

Timothy P. Schofield is now located at the Centre for Research on Ageing, Health and Wellbeing at the Australian National University, Canberra, Australia.

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Declaration of Conflicting Interests

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References

Assad, S. A. (2008). The rise of consumerism in Saudi Arabian society. *International Journal of Commerce and Management*, *17*, 73-104.

Correll, J., Hudson, S. M., Guillermo, S., & Ma, D. S. (2014). The police officer's dilemma: A decade of research on racial bias in the decision to shoot. *Social & Personality Psychology Compass*, *8*, 201-213.

Correll, J., Park, B., Judd, C. M., & Wittenbrink, B. (2002). The police officer's dilemma: Using ethnicity to disambiguate potentially threatening individuals. *Journal of Personality and Social Psychology*, *83*, 1314-1329.

Correll, J., Urland, G. R., & Ito, T. A. (2006). Event-related potentials and the decision to shoot: The role of threat perception and cognitive control. *Journal of Experimental Social Psychology*, *42*, 120-128.

Correll, J., Wittenbrink, B., Park, B., Judd, C. M., & Goyle, A. (2011). Dangerous enough: Moderating racial bias with secondary threat cues. *Journal of Experimental Social Psychology*, *47*, 184-189.

Cousineau, D. (2005). Confidence intervals in within-subject designs: A simpler solution to Loftus and Masson's method. *Tutorial in Quantitative Methods for Psychology*, *1*, 4-45.

Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology*, *56*, 5-18.

Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191.

Kahn, K. B., & Davies, P. G. (2010). Differentially dangerous? Phenotypic racial stereotypicality increases implicit bias among ingroup and outgroup members. *Group Processes & Intergroup Relations*, *14*, 569-580.

Maddox, K. B., & Gray, S. A. (2002). Cognitive representations of Black Americans: Re-exploring the role of skin tone. *Personality and Social Psychology Bulletin*, *28*, 250-259.

Miller, S. L., Zielaskowski, K., & Plant, E. A. (2012, June 18). The basis of shooter biases: Beyond cultural stereotypes. *Personality and Social Psychology Bulletin*, *38*, 1358-1366.

Pew Global Attitudes Project. (2006, June). *The great divide: How Westerners and Muslims view each other*. Washington, DC: Pew Research Center.

Pew Global Attitudes Project. (2011, July). *Muslim-Western tensions persist*. Washington, DC: Pew Research Center.

Plant, E. A., Goplen, J., & Kunstman, J. W. (2011). Selective responses to threat: The roles of race and gender in decisions to shoot. *Personality and Social Psychology Bulletin*, *37*, 1274-1281.

Saleem, M., & Anderson, C. A. (2013). Arabs as terrorists: Effects of stereotypes within violent contexts on attitudes, perceptions and affect. *Psychology of Violence*, *3*, 84-99.

Samin, N. (2008). Dynamics of Internet use: Saudi youth, religious minorities and tribal communities. *Middle East Journal of Culture and Communication*, *1*(2), 197-215.

Samin, N. (2012). Saudi Arabia, Egypt, and the social media moment. *Arab Media & Society*, 15. http://www.arabmediasociety.com/?article=785 (accessed February 27, 2015).

Shaheen, J. G. (2003). Reel bad Arabs: How Hollywood vilifies a people. *The Annals of the American Academy of Political and Social Science*, *588*, 171-193.

Stanislaw, H., & Todorov, N. (1999). Calculation of signal detection theory measures. *Behavior Research Methods, Instruments & Computers*, *31*, 137-149.

Stephan, W. G., & Stephan, C. W. (2000). An integrated threat theory of prejudice. In S. Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 23-45). Mahwah, NJ: Lawrence Erlbaum.

Unkelbach, C., Forgas, J. P., & Denson, T. F. (2008). The turban effect: The influence of Muslim headgear and induced affect on aggressive responses in the shooter bias paradigm. *Journal of Experimental Social Psychology*, *44*, 1409-1413.

Unkelbach, C., Goldenberg, L., Müller, N., Sobbe, G., & Spannaus, N. (2009). A shooter bias in Germany against people wearing Muslims headgear. *International Review of Social Psychology*, *22*, 181-201.

World Values Survey Association. (2005). *Publicly available datasets*. Available from http://www.worldvaluessurvey.org

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Timothy Deckman was awarded his PhD from the Department of Psychology at the University of Kentucky, and now works for Roger Green and Associates.

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Thomas F. Denson is an associate professor and ARC Future Fellow in the School of Psychology at the University of New South Wales. His research focuses on the causes and causes of anger and aggression.