Addressing the Cultural Challenges of Firearm Restriction in Suicide Prevention: A Test of Public Health Messaging to Protect Those at Risk

Elizabeth Marino, Ph.D.
Department of Anthropology
Oregon State University – Cascades
Bend, Oregon

*Christopher Wolsko, Ph.D.
Department of Psychology
Oregon State University – Cascades
Bend, Oregon

Susan Keys, Ph.D.
College of Public Health and Human Sciences
Oregon State University – Cascades
Bend, Oregon

Holly Wilcox, Ph.D.
Bloomberg School of Public Health
Johns Hopkins University
Baltimore, Maryland

ACCEPTED FOR PUBLICATION: ARCHIVES OF SUICIDE RESEARCH

*corresponding author:

Christopher Wolsko, Ph.D.
Oregon State University – Cascades
Graduate & Research Center 236
650 SW Columbia Street
Bend, OR 97702
Tel: 541.322.3182
Email: chris.wolsko@osucascades.edu

Text word count: 3249
Total manuscript pages: 17
Tables: 1
Supplementary material files: 1

ABSTRACT

Objectives. Reducing access to firearms as a suicide prevention strategy is limited in the US today because of divergent cultural attitudes and political contentiousness surrounding gun restrictions. This research examined the effects of culturally-specific suicide prevention messages on the likelihood of restricting firearm access during periods of suicide risk.

Methods. Focus groups and key informant interviews were conducted with rural gun owners in order to develop a suicide prevention message that highlighted the importance of restricting access to firearms during periods of risk without threatening second amendment concerns. The effectiveness of this gun culture message, relative to standard suicide prevention messaging and a control condition, was then tested with a national sample of gun owners.

***Results*.** Relative to all other conditions, respondents who received our culturally-specific message in conjunction with standard suicide prevention content reported the greatest likelihood of taking steps to restrict access to firearms. This tendency was enhanced for individuals who were more politically conservative, lived in more rural areas, and supported gun rights to a stronger degree.

Conclusions. Findings underscore the importance of attending to cultural factors in public health messaging. Messaging that respects the values of gun owners could hold promise in promoting firearm restriction for suicide prevention.

INTRODUCTION

Suicide accounted for 42,773 deaths in 2014 and 50% of these suicide deaths occurred using a firearm[1]. The high degree of lethality of firearms[2-5] makes them particularly dangerous during periods of suicidal ideation – only around 10% of individuals who use firearms to attempt suicide survive[3]. There is a strong association between the ready availability of firearms in households and death by suicide[6-8], and safe gun storage practices are associated with a decreased risk for suicide[8,9]. Reducing access to lethal means is one of the few empirically supported ways to reduce suicide rates, both in the US and abroad[10-18]. Additionally, research shows that 64% of all people who die by suicide have visited their primary care physician within a year of taking their life[14]. Because primary care practices are also well situated to provide screening for mental health and suicide risk, interventions aimed at voluntarily reducing access to firearms that are implemented in these settings may have particular success in lowering rates of suicide in the US.

Despite this recognition, reducing access to firearms as a suicide prevention strategy is limited in the US today because of the political contentiousness surrounding gun restrictions[19] and because of deep rooted, sociocultural belief systems which place high value on gun ownership among certain populations[20]. Today, guns are part of the social fabric of the US, both materially and socio-culturally. The common presence of firearms in the US has led some researchers to make the claim that “reducing a suicidal person’s access to firearms will usually be accomplished not by fiat or other legislative initiative but rather by appealing to individual decision, for example, by counseling at-risk people and their families to temporarily store household firearms away from home

or otherwise making household firearms inaccessible to the at-risk person until they have recovered."[21]

While firearm owners and gun advocates generally agree that something needs to be done to reduce deaths by suicide[22], "appealing to individual decision" regarding voluntary gun restriction is not a simple feat. Socio-cultural research has shown that discussing guns, access to guns, and restrictions on gun access is a politically contentious[20], culturally sensitive[23], and personally invasive[24] conversation. These conversations can trigger identity politics[20,23], alienate patients and encourage them to lie to their physicians[24], and derail interventions by physicians working to reduce rates of suicide.

In the current investigation, we hypothesized that a culturally informed intervention strategy aimed at voluntarily reducing access to firearms during periods of suicidal ideation will ultimately be more successful than an intervention that ignores cultural norms. Using a mixed methods approach, we first sought to identify the appropriate cultural framework to discuss voluntarily limiting gun access without triggering the highly contentious national discourse surrounding gun restrictions and the right to bear arms. Through a series of focus groups and key informant interviews, we identified language that would be acceptable to gun owners and consistent with the values and worldviews already present within gun owning communities. In response to public health concerns in our geographic region of Oregon, we focused on rural communities, where suicide rates are known to be higher – both locally and nationally[25]. From this initial work, we derived a suicide prevention message that focused on

voluntary restriction of firearms and was consistent with the values of rural gun owning communities.

Next, this culturally competent suicide prevention message was tested against standard suicide prevention public health messaging. To accomplish this, we conducted a nationwide survey comparing the effects of four different suicide prevention messages on individuals' reported likelihood of engaging in gun restriction behaviors (including taking steps with the assistance of a primary care provider) under conditions of increased suicide risk for a family member, a friend, and oneself. Classic research in social and health psychology indicates that understanding the processes which create behavioral intentions are critical in predicting eventual behavior[26], that such intentions do predict actual behavior in a multitude of health domains[27], and that such intentions and behaviors are responsive to the framing of health promotion messages[28]. Our initial test of the messaging examined effects on behavioral intentions specific to the primary care context as well as to suicide prevention more informally with friends and family members.

The aims of this study were (1) to determine whether specific public health messaging predicts differences in the likelihood of intended firearm restriction, and (2) to determine the extent to which the effects of messaging would be stronger for those who are more politically conservative, who champion gun rights to a greater extent, and who live in rural areas of the US.

METHODS

Focus Group Interviews

A total of 39 adult gun owners (22 men and 17 women) from rural communities in central Oregon participated in one of five focus groups, or one of four key informant interviews. Participants were recruited via in-person requests at local gun stores and primary care facilities, as well as word of mouth snowball sampling. The interviews were conducted in 2015, lasted 1 to 2 hours, and participants were compensated with a $25 gift card.

The interviews were designed to understand the culture of gun ownership, especially in rural environments, including acceptable, non-threatening methods of improving gun safety that respect the rights of gun owners while keeping suicidal patients safe. The interviews covered: (1) *general firearm use and safety*, (e.g. “What do you do in your household to promote gun safety?”); (2) *firearm safety communication and circumstances* (e.g. “If there was someone who was struggling with mental illness in your home, how might that affect your firearm safety precautions?”); and (3) *firearm communication in a health care setting* (e.g. “If you or a family member was struggling with mental health issues, how would you feel if your health care provider asked you about your firearm safety precautions?”). These data were analyzed in order to construct a one-page suicide prevention message that encouraged restriction of access to firearms while respecting the cultural values and rights of gun owners (see Gun Culture message in Supplementary Material and Survey Methods, below). The following survey examined the effects of this message on the likelihood of engaging in several key gun restriction/access behaviors for suicide prevention.

Survey

A total of 817 gun owners sampled from the Amazon MTurk system completed a short 10-15 minute survey in exchange for $1.00. MTurk is an online labor market that is widely utilized by survey researchers in psychology and other social sciences[29,30]. US samples obtained via MTurk are demographically diverse, representative of the US population, and display strong psychometric properties (e.g. test-retest reliability, experimental replication)[29,30]. All surveys were completed in 2016. The sample was relatively balanced in gender (54.2% male, 45.8% female); predominantly White (82.2% White, 6.9% Black/African American, 6.2% Latino/Hispanic, 3.7% Asian American, 0.4% Pacific Islander; 0.7% American Indian / Alaska Native); diverse in age (*M* = 35.65, *SD* = 10.92); diverse in highest educational attainment (0.5%, some high school, 9.2%, high school diploma or GED, 38.5%, some college or associates degree, 37.8%, bachelor's degree, 14.0%, master's degree or higher); and representative of the U.S. population in household income (14.0%, less than $25,000; 31.1% from $25,000 to $49,999; 26.3% from $50,000 to $74,999; 14.6% from $75,000 to $99,999; 13.9%, $100,000 or more). Rurality was coded from zip codes provided by participants using the 2013 Rural-Urban Continuum Codes from the USDA's Economic Research Office. The majority of participants were residents of urban areas (77.9% reported living in metro areas of at least 250,000 individuals).

Participants completed an anonymous survey containing the measures described below. Those who completed the survey were reminded of the gun ownership

requirement on the first page of the survey and were asked to verify this. Near the end of the survey, in responses not analyzed for the purposes of this article, individuals were asked to type the primary reasons they use firearms. Three respondents were deleted from the analysis as they indicated that they did not own a firearm.

Political Orientation. First, participants completed an eight-item assessment of *political orientation*[31]. Instructions requested that participants indicate the extent to which they were in favor of or against "each of eight policies, practices, and political groups," on a scale ranging from 1 *strongly against* to 7 *strongly in favor.* Each participant received a *political orientation,* such that higher scores reflected a more conservative political orientation.

Gun Rights Attitudes. Next, participants completed factor 1 of the 3-dimensional Attitudes Toward Guns Scale (ATGS)[32], in which participants were asked to indicate the extent to which they agreed with a series of statements about the right of the American public to own guns. Responses were recorded on a scale ranging from 1 *strongly disagree* to 7 *strongly agree.* Each participant received a *gun rights* score, calculated as the average response to these items, with higher numbers reflecting a stronger belief in gun rights.

Experimental Manipulation. Next, participants were randomly assigned to receive one of 4 different messages: control; standard; gun culture; or standard plus gun culture (see Supplemental Material for the full text of each message). In the *control* condition, participants read the following statement: **"**Mental health and suicide prevention are important public health issues." In the other 3 conditions, participants were instructed to "Please read through the following public health message about these issues before

responding to the questions that follow." In the *standard* condition, participants then read through information on suicide warning signs and how to take action to prevent suicide from the National Suicide Prevention Lifeline's information sheet and wallet card. In the *gun culture* condition, participants read through a suicide prevention message designed to respect the values and rights of gun owners (derived from the focus groups and key informant interviews). This message emphasized the importance of protecting second amendment rights at the same time as protecting oneself and one's friends and family members from unnecessary harm. Recommended suicide prevention behaviors, such as temporarily holding firearms for another individual or temporarily relinquishing access for oneself, were framed as part of being a proud, responsible, and safe gun owner. Additionally, the gun culture message suggested that restricting access to firearms during periods of suicide risk can be particularly effective, even though some individuals may find another lethal means. This component of the message was designed to address a somewhat common concern among interviewees that firearm restriction was being overemphasized in this approach to prevention. Participants in the *standard plus gun culture* condition read through the standard message followed by the gun culture message.

Suicide Prevention Behavioral Likelihood. After reading through the message, participants indicated how likely they would be to restrict access to guns if each of the following individuals demonstrated warning signs of suicide: a family member, a friend, or oneself. For the hypothetical family member and friend experiencing suicidal ideation, participants indicated how likely they would be to engage in each of two behaviors: "remove guns from their home temporarily" and "ask them to give away their guns

temporarily to you or another trusted individual." Participants indicated the likelihood of engaging in three behaviors if they personally were contemplating suicide: "speak with a friend or other trusted individual about temporarily giving them your guns," "speak with your doctor about temporarily giving your guns to someone else," and "give your guns temporarily to a friend or trusted individual." Responses to all items were provided on a 7-point scale ranging from 1 *extremely unlikely* to 7 *extremely likely*. The neutral point on the scale (= 4) was designated as *50/50* (equally likely as unlikely). Each participant then received 3 different scores, one for each hypothetical situation (*family*, *friend*, and *self*), constituting their willingness to take steps to temporarily restrict access to firearms for a family member, a friend, or oneself, with higher numbers indicating greater likelihood.

Finally, participants were asked to indicate how likely they would be to engage in the following three behaviors with their doctor if they had expressed feelings of depression and/or possible suicidal behavior in an office visit and the doctor had asked about firearms: "Tell your doctor that you own guns", "Tell your doctor how many guns you own", and "Tell your doctor where you keep your guns." Reponses were provided on a 7-point scale ranging from 1 *extremely unlikely* to 7 *extremely likely*, and each participant received a *talking about your guns* score taken as the average across the three items, with higher numbers reflecting greater likelihood.

Statistical Analyses. Interview data was analyzed using grounded theoretical techniques[33,34], in which we engaged in continual comparison of the data with an emerging conceptual framework of relationships between themes of gun culture, gun safety, and suicide prevention emphasized by participants.

Differences in behavioral intentions between the four message conditions were examined with one-way ANOVAs and post-hoc *t*-tests. Subsequently, we examined the extent to which differences in behavioral intentions between two key message conditions (*standard* vs. *standard plus gun culture*) were moderated by three variables that play a central role in gun discourse in the US: political orientation, rural residence, and gun rights attitudes. To do so, two sets of three multiple regressions were conducted in which a composite index of behavioral intentions (described below) and then participants' *talking about your guns* scores were each regressed onto the given moderator, condition (contrast-coded), and the moderator X condition interaction (calculated as the product of the moderator and the condition contrast code).

As the *family*, *friend*, and *self* variables were all highly intercorrelated (all *r*'s > .51, *p*'s < .001), we combined them into a single composite index of behavioral intentions by taking the mean of the three scores for each participant, with higher numbers reflecting greater likelihood of *gun restriction*. As the sample skewed slightly liberal on political orientation (M = 3.65, SD = 1.30) we coded this moderator dichotomously (-1 = liberal, defined as political orientation score of 4 or less; and +1 = conservative, defined as political orientation score of greater than 4), rather than continuously in order to distinguish between those on the political right vs. liberals and moderates. Rurality was also coded dichotomously (-1 = urban, defined as living in metro areas of at least 250,000 individuals; and +1 = rural, defined as living in counties with a population of smaller than 250,000). Finally, as the sample was quite in favor of gun rights on average (M = 5.97, SD = 1.14), we treated this moderator continuously

and used standard scores in the regression analyses' moderator and product terms, described earlier.

RESULTS

The means for each dependent variable as a function of condition are presented in Table 1. Relative to those who received the *control* or *standard* message, participants who received the *standard plus gun culture* message reported significantly higher likelihood of restricting access to firearms and discussing the details of their firearms with their physician. Responses from participants in the *control* and *standard* conditions were statistically equivalent. Additionally, while responses on all dependent variables were statistically equivalent in the *gun culture* and *standard plus gun culture* conditions, responses in the *gun culture* condition were only sporadically greater than in the *control* and *standard* conditions. Thus, the *standard plus gun culture* message clearly resulted in the greatest likelihood scores.

In our next set of analyses, we determined the extent to which the *standard plus gun culture* message, relative to the *standard* message, was particularly effective for individuals who were more conservative, rural, and supportive of gun rights.

In the three regression models predicting intentions for *gun restriction*, findings indicated a significant political orientation by condition interaction, $b = .22$, $SE = .06$, $t(391) = 3.55$, $p < .001$; a significant rurality by condition interaction, $b = .22$, $SE = .09$, $t(389) = 2.48$, $p = .013$; and a significant gun rights by condition interaction, $b = .27$, $SE = .06$, $t(391) = 4.31$, $p < .001$. Thus, the effect of condition on gun restriction likelihood was stronger for conservatives than for liberals, stronger for rural residents than for

urban residents, and stronger for those who were more in favor of gun rights. Examining simple effects using unstandardized coefficients from the regression models indicated that liberals, urban residents, and weaker supporters of gun rights were not different on gun restriction likelihood between conditions. In contrast, conservatives, rural residents, and those who were more strongly in favor of gun rights increased significantly (approximately 1.2 scale points on average).

From the three models predicting *talking about your guns*, findings indicated a significant gun rights by condition interaction, $b = .23$, $SE = .10$, $t(390) = 2.26$, $p = .024$, indicating that the effect of condition on *talking about your guns* was stronger for those who were more in favor of gun rights. Participants who were less strongly in support of gun rights (-1 *SD* on this variable) were statistically equivalent in their expressed likelihood of talking about their guns with their doctor between conditions, whereas those who were more strongly in favor of gun rights (+1 *SD* on this variable) increased significantly (from 3.58 in the standard condition and 4.66 in the standard plus gun condition).

Finally, although we had no a priori expectations about the relationships between demographic characteristics and our main dependent variables, we did examine behavioral intentions as function of age, gender, ethnicity / race, household income, education, and military status. The only significant findings were overall gender differences in the reported likelihood of restricting access to firearms. Results indicated that relative to men, women expressed greater likelihoods of restricting access to lethal means for a family member ($M_{Men} = 5.51$, $M_{Women} = 5.93$), $t(812)$, $p < .001$; for a friend

(M_{Men} = 5.51, M_{Women} = 5.91), t(812), p < .001; and for oneself (M_{Men} = 4.65, M_{Women} = 4.98), t(812), p = .006.

CONCLUSIONS

These findings support our hypothesis that a culturally competent message about voluntary firearm restriction is more impactful on gun owners than a message that ignores cultural norms. The effect of the manipulation was greater on individuals who more strongly identified as conservatives and who more strongly advocated for gun rights – suggesting that a targeted approach to this messaging intervention may be most effective. Indeed, the moderation analyses described above indicate that the cultural messaging moved conservatives and strong gun advocates over 1 point on the behavioral intentions scale, signifying greater clinical significance than is suggested by the modest mean differences displayed in Table 1. Additionally, the effect of the culturally-derived message was greater on rural gun owners, which may reflect the fact that the message was constructed with data collected from rural gun owners. Oversampling rural residents in future work would be beneficial for more reliably identifying the power of the messaging on this demographic. More generally, across all participants, messaging had effects on behavioral likelihood in primary care contexts as well as with friends and family members, suggesting wide applicability.

Responses to the control and the standard suicide prevention messages were roughly equivalent. That is, presenting the standard suicide prevention message (which included information on lethal means restriction) to gun owners had no additional impact on participants compared to the control group (which essentially provided no information

at all). This finding raises questions about the efficacy of standard suicide prevention messaging for facilitating the restriction of lethal means.

We were heartened by the finding that, on average, individuals in the control and standard conditions reported being at least somewhat likely to temporarily remove firearms from an individual at-risk of suicide. While this data provides some cause for optimism, we suspect that public health messages and health provider interactions that systematically ignore the cultural values of gun owners could easily shift attitudes and behaviors in the opposite direction.

We also found that the *standard plus gun culture* message was significantly and consistently more impactful than the gun culture message alone. The psychological mechanisms for this are unclear, but it may be that health information is more impactful once the individual feels that the message is coming from a trusted source. The gun message, in this case, may have created trust, allowing the participating gun owner to accept the standard information about suicide prevention in a more direct and positive light. This combination of 'ingroup' trust *plus* information has been shown to be powerful for changing attitudes and behavior in the social psychological literature[35], but has been underexplored in public health.

The validity and generalizability of findings from this work are potentially limited by the fact that the gun culture message utilized here was largely informed by the views of rural, white, gun owners in central Oregon. Obviously, these views may not adequately capture those of other gun owners, in rural areas or more generally across a variety of demographics. Going forward, it will be important to address the heterogeneity of cultural attitudes about gun restriction in the context of suicide prevention in order to

tailor health messages more appropriately. The present message serves as an important starting point for this effort, however, as it clearly resonated with and influenced behavioral intentions among a large and diverse national sample of gun owners. As the effectiveness of the messaging is further validated, future work also needs to assess actual gun restricting behavior, in addition to behavioral intentions. Additionally, it is important to explore the behavioral effects of such messaging as a function of respondents' current gun safety and storage practices, rather than simply gun rights advocacy, as was examined in the present investigation. It is conceivable that individuals and households who currently abide by more strict and clearly defined firearm safety norms may be more willing, or may find it easier, to shift in the direction advocated by the culture suicide prevention appeal.

In conclusion, the present investigation brings our attention to the reality that cultural factors inevitably frame public health messages and interventions[36]. Messages about serious public health concerns can never be "culture neutral." The words we use and the way information is constructed, presented, and disseminated will be activated through cultural systems. In contributing to the body of research that assesses the cultural dimensions of public health[37], this research suggests that acknowledging the cultural framing of public health messaging and using that knowledge to reach vulnerable populations could have promise in promoting firearm restriction for suicide prevention.

ACKNOWLEDGMENTS

This research was supported by grants from the University of Rochester's Center for the Study and Prevention of Suicide (*Promoting Firearm Safety for Suicide Prevention in*

Primary Care, Susan Keys, Lead PI) *and* from the Oregon Health Authority (*Firearm Safety and Limiting Access to Lethal Means for Patients at Risk of Suicide: Promoting Effective Conversations with Firearm Owners in Primary Care Settings,* Susan Keys, Lead PI).

REFERENCES

1. Web-based Injury Statistics and Query and Reporting System (WISQARS), 2015. Centers for Disease Control and Prevention Web site. http://www.cdc.gov/injury/wisqars/index.html. Accessed August 23, 2016.

2. Anestis MD, Anestis JC. Suicide rates and state laws regulating access and exposure to handguns. *Am J Public Health*. 2015; 105(10): 2049-2058.

3. Spicer RS, Miller TR. Suicide acts in 8 states: incidence and case fatality rates by demographics and method. *Am J Public Health.* 2000; 90(12): 1885-1891.

4. Chapdelaine A, Samson E, Kimberly MD, Viau L. Firearm-related injuries in Canada: issues for prevention. *Can Med Assoc J*. 1991; 145(10): 1217-1223.

5. Barber CW, Miller MJ. Reducing a suicidal person's access to lethal means of suicide: a research agenda. *Am J Prev Med*. 2014; 47(3): S264-272.

6. Brent DA. Firearms and suicide. *Ann NY Acad Sci*. 2001; 932(1):225-240.

7. Miller M, Azrael D, Barber C. Suicide mortality in the United States: the importance of attending to method in understanding population-level disparities in the burden of suicide. *Annu Rev Public Health*. 2012; 33: 393-408.

8. Grossman DC, Mueller BA, Riedy C, et al. Gun storage practices and risk of youth suicide and unintentional firearm injuries. *JAMA.* 2005; 293(6): 707-714.

9. Webster DW, Vernick JS, Zeoli AM, Manganello JA. Effects of youth-focused firearm laws on youth suicides. *JAMA.* 2004; 292: 594-601.

10. Florentine JB, Crane C. Suicide prevention by limiting access to methods: a review of theory and practice. *Soc Sci Med*. 2010; 70(10): 1626-1632.

11. Bridges FS. Gun control law (Bill C-17), suicide, and homicide in Canada. *Psychol Rep*. 2004; 94(3): 819-826.

12. Caron J. Gun control and suicide: possible impact of Canadian legislation to ensure safe storage of firearms. *Arch Suicide Res*. 2004; 8(4): 361-374.

13. Ozanne-Smith J, Ashby K, Newstead S, Stathakis VZ, Clapperton A. Firearm related deaths: the impact of regulatory reform. *Injury Prev*. 2004; 10(5): 280-286.

14. Ahmedani BK, Simon GE, Stewart C, et al. Health care contacts in the year before suicide death. *J Gen Intern Med*. 2014; 29(6): 870-877.

15. Gunnell D, Fernando R, Hewagama M, Priyangika WD, Konradsen F, Eddleston M. The impact of pesticide regulations on suicide in Sri Lanka. *Int J Epidemiol*. 2007;36(6):1235-42.

16. Kreitman N. The coal gas story. United Kingdom suicide rates, 1960-71. Br J Prev Soc Med. 1976 Jun;30(2):86-93.

17. Hawton K. United Kingdom legislation on pack sizes of analgesics: background, rationale, and effects on suicide and deliberate self-harm. Suicide and Life-Threatening Behavior. 2002;32(3):223-229

18. Shelef L, Tatsa-Laur L, Derazne E, Mann JJ, Fruchter E. An effective suicide prevention program in the Israeli Defense Forces: A cohort study. *Eur Psychiatry*, 2016; 31, 37–43.

19. Caine ED. Forging an agenda for suicide prevention in the United States. *Am J Public Health*. 2013; 103(5): 822-829.

20. Celinska K. Individualism and collectivism in America: the case of gun ownership and attitudes toward gun control. *Sociol Perspect*. 2007; 50(2): 229-247.

21. Barber CW, Miller MJ. Reducing a suicidal person's access to lethal means of suicide: a research agenda. *Am J Prev Med*. 2014; 47(3): S264-272 [page S264]

22. Barry CL, McGinty EE, Vernick JS, Webster DW. Two years after Newtown—public opinion on gun policy revisited. *Prev Med*. 2015; 79: 55-58.

23. Kahan DM, Braman D. More statistics, less persuasion: a cultural theory of gun-risk perceptions. *U Penn Law Rev*. 2003; 151(4): 1291-327.

24. Marino, E. Wolsko, C., Keys, S. and Pennavaria, L. A culture gap in the United States: Implications for policy on limiting access to firearms for suicidal persons. *J Public Health Pol*. 2016; 37(3): S110-121.

25. Fontanella CA, Hiance-Steelesmith, DL, Phillips, GS, et al. Widening rural-urban disparities in youth suicides, United States, 1996-2010. *JAMA Pediatr.* 2015; 169(5): 466-473.

26. Ajzen I. The theory of planned behavior. *Organ Behav Hum Dec.* 1991; 50(2): 179-211.

27. Godin G, Kok G. The theory of planned behavior: a review of its applications to health-related behaviors. *Am J Health Promot*. 1996; 11(2): 87-98.

28. Salovey P, Wegener DT. Communicating about health: message framing, persuasion, and health behavior. In: Suls J, Wallston, KA, eds. *Social Psychological Foundations of Health and Illness.* Malden, MA: Blackwell Publishing; 2003: 54-81.

29. Buhrmester M, Kwang T, Gosling SD. Amazon's Mechanical Turk: A New Source of Inexpensive, Yet High-Quality Data? *Perspect Psychol Sci*. 2011; 6(1): 3-5.

30. Berinsky AJ, Huber GA, Lenz GS. Evaluating Online Labor Markets for Experimental Research: Amazon.com's Mechanical Turk. *Polit Anal*. 2012; 20(3): 351-368.

31. Nail PR, McGregor I, Drinkwater AE, Steele GM, Thompson AW. Threat causes liberals to think like conservatives. *J Exp Soc Psychol*. 2009; *45*(4): 901-907.

32. Branscombe NR, Weir JA, Crosby P. A three-factor scale of attitudes toward guns. *Aggressive Behav*. 1991; 17(5): 261-273.

33. Glasser BG, Strauss A. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago, IL: Aldine; 2004.

34. Strauss A, Corbin J. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage; 1990.

35. Kahan DM. Ideology, motivated reasoning, and cognitive reflection. *Judgm Decis Mak*. 2013; *8*(4): 407-424.

36. Kreuter MW, McClure SM. The role of culture in health communication. *Annu Rev Publ Health*. 2004; 25: 439-455.

37. Institute of Medicine (US) Committee on Communication for Behavior Change in the 21st Century: Improving the Health of Diverse Populations. *Speaking of Health: Assessing Health Communication Strategies for Diverse Populations*. Washington, DC: National Academy Press; 2002.