Conflicting Attitudes: Could Gun Control Policy Ambivalence Influence Gun Owners' Participation in Gun Violence Prevention?

by

Frank Mojekwu

A dissertation accepted and approved in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

in Counseling Psychology

Dissertation Committee:

Emily Tanner-Smith, Chair

Jessica Cronce, Core Member

Clare Evans, Core Member

Benedict McWhirter, Core Member

Rhonda Nese, Institutional Representative

University of Oregon

Summer 2025

DISSERTATION ABSTRACT

Frank Mojekwu

Doctor of Philosophy in Counseling Psychology

Title: Conflicting Attitudes: Could Gun Control Policy Ambivalence Influence Gun Owners' Participation in Gun Violence Prevention?

Most U.S. residents who own guns do so for the purpose of self-defense, but gun ownership has been linked to increased risk of gun injury and lethal victimization. Law-making bodies have proposed gun control legislation to reduce the frequency of victimization and injury resulting from the use of firearms. Gun owners in the United States are less likely to support policy intended to reduce the risk of gun violence and gun injury. Prior investigations suggested that this population's level of support varies by policy, with some policies frequently receiving support from most gun owners in the United States.

The Theory of Reasoned Action (TRA) and transtheoretical model (TTM) both propose that an individual's likelihood of engaging in a behavior is influenced by their attitudes about the behavior. Investigations into the TRA have found that the relationship between attitudes and willingness to engage in a behavior is weakened when individuals have ambivalent attitudes toward the behavior. Therapeutic approaches that draw from the TTM often increase ambivalence to facilitate behavior change. Recognizing this, I sought to investigate a) if U.S. gun owners possess a single attitude to gun control policies, b) the direct relationship between ambivalence and willingness to participate in gun violence prevention and c) the indirect, moderating role of ambivalence on relationship between gun policy attitudes and gun violence prevention intentions using survey data from a representative sample of U.S. gun owners (n = 2,068).

Factor analysis results indicated that gun owners expressed attitudes toward subcategories of gun policy associated with dangerous ownership, the location of firearms, and dangerous

firearm accessories. Latent profile analyses demonstrated that ambivalence had a parabolic relationship with both gun policy attitudes and behavioral intentions. Structural equation modeling failed to identify a moderating effect of ambivalence on the relationship between policy attitudes and willingness to engage in gun violence prevention. Post-hoc analyses suggested that this finding may be supported when investigated using more appropriate measures. Overall, my findings indicate that gun violence prevention efforts may be served by identifying gun owners with nuanced policy attitudes who may be more willing to support gun violence prevention efforts.

CURRICULUM VITAE

NAME OF AUTHOR: Frank Mojekwu

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon, Eugene, OR
University of Texas, Austin, TX

DEGREES AWARDED:

Doctor of Philosophy, Counseling Psychology, 2025, University of Oregon
Master of Science, Counseling, Family, and Human Services, 2022, University of Oregon
Bachelor of Science and Arts, Biology, 2016, University of Texas

AREAS OF SPECIAL INTEREST:

Psychology and Public Policy
High Risk Behavior
Treatment Effectiveness
Evidence-based & Contextually Sensitive Treatment

PROFESSIONAL EXPERIENCE:

Qualified Mental Health Provider, Eugene Center for Anxiety and Stress, September 2022 to May 2024

Practicum Extern, Western Clinical and Forensic Services, September 2022 to August 2024

Graduate Clinical Coordinator, HEDCO Clinic, September 2022 to June 2024

Psychological Trainee, HEDCO Clinic Child and Family Center, September 2021 to September 2022

Psychological Trainee, HEDCO Clinic Counseling Psychology Center, September 2020 to June 2021

Research Assistant, HEDCO Institute for Evidence-Based Educational Practice, June 2022 to September 2022

Instructional Graduate Employee, University of Oregon Department of Counseling Psychology and Human Services, September 2019 to June 2022

GRANTS, AWARDS, AND HONORS:

Tasia M. Smith Excellence Scholarship, University of Oregon, 2023

Leon Culbertson Scholarship, University of Oregon, 2023

Tasia M. Smith Excellence Scholarship, University of Oregon, 2022

Ray and Mary Wilson Endowed Scholarship, University of Oregon, 2022

College of Education Conference Travel Award, University of Oregon, 2021

Lokey Science Graduate Award, University of Oregon, 2019

PUBLICATIONS:

Tanner-Smith, E. E., **Mojekwu, F.**, & Frankel, L. (2023). Examining the Effects of Juvenile Drug Treatment Courts: A Systematic Review and Meta-analysis. *Criminal Justice and Behavior*

Berny, L. M., **Mojekwu, F.**, Nichols. L. M., & Tanner-Smith, E. E. (2023). *Investigating the interplay between mental health conditions and social connectedness on suicide risk: Findings from a clinical sample of adolescents* [Manuscript submitted for publication]. Department of Counseling Psychology and Human Services, University of Oregon.

Gies, S. V., Nichols, L. M., **Mojekwu, F.**, Guerette, R. T., & Tanner-Smith, E. E. (2023). Applying an empirically derived effect size distribution to benchmark the practical magnitude of interventions to reduce recidivism in the USA. *Journal of Experimental Criminology*. https://doi.org/10.1007/s11292-023-09561-1

Tanner-Smith, E. E., **Mojekwu, F.**, & Frankel, L. (2022). *Examining the Effects of Juvenile Drug Treatment Courts: A Systematic Review and Meta-analysis* (NCJ No. 306472). University of Oregon Prevention Science Institute. https://www.ojp.gov/pdffiles1/nij/grants/306472.pdf

ACKNOWLEDGEMENTS

A colleague recently asked me whether they should acknowledge a previous mentor in their dissertation. At that point, I had spent years unlearning the bad habit of liberally providing advice, so I offered them a consideration: "It is only as meaningful as you want it to be." This dissertation is an exercise in self-interest; it is page upon page of ideas *I* believed to be worth exploring. To all who have been a presence in my life, I hope that you feel as seen, known, and loved as I have from knowing you. This space belongs to *you*.

I've been fortunate to have been surrounded by so many awesome, supportive, and courageous women in my personal and professional life. I'm thankful to my mom (Errikka D. McCardell) and partner (Allison E. Braithwaite) for holding space in their hearts when I needed respite from this life's woes. I'm thankful to my academic advisor, Emily Tanner-Smith, for her unwavering conviction in my potential. It has taken almost five years of dogged support for her to finally convince me that my professional insecurities were (mostly) unfounded and that I was capable of the lofty goals I had for myself. More importantly, I'm grateful to have had a model of professionalism that doesn't compromise individuality.

I want to acknowledge the many, many people who helped me maintain my humanity and dignity throughout this process. I owe a debt of gratitude to everyone who took even a fleeting interest in my life these past few months, from faculty members who asked me about my day in the elevator to my undergraduate supervisees who reminded me that I have something of value to offer to the world. You all chose to validate me in a world that often ignores my existence.

Finally, this dissertation would be a completely selfish endeavor if I didn't believe that the topic would be of interest to others. If you've chosen to dedicate your finite psychological resources to reading this proverbial shout into the academic void, thank you for caring.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

In 2020, the United States murder rate exhibited its largest year-to-year increase since the FBI began to track the nation's crime rates (Asher, 2021). The same year, firearms were used in murders more often than ever (Grawert & Kim, 2022). In 2021, the CDC reported that firearms were responsible for 20,958 homicides and 26,328 deaths by suicide, which accounted for approximately 81% of all homicide deaths and 55% of suicide deaths in the United States that year. By June 2022, 42% of U.S. adults believed crime or gun violence to be one of the country's most critical issues (Skelley & Fuong, 2022).

Following a series of highly publicized shootings in well-populated and typically safe areas, handgun sales surged in California as individuals sought safety in firearms (Studdert et al., 2017). Sadly, this was a dangerous response. Although possessing firearms may allow individuals to protect themselves from gun violence, the mere presence of firearms increases the lethality of violent acts (Braga et al., 2020). Indeed, the passage of Stand Your Ground policies (i.e., policies designed to incentivize defensive firearm use) was associated with either no changes or subsequent increases in fatal and non-fatal firearm injury rates (Degli Esposti et al., 2022; Gius, 2016; McClellan & Tekin, 2017; Schell et al., 2020). Moreover, over the last 20 years, the rate of gun ownership has remained relatively consistent (McCracken, 2020), and the rate of violent crime has decreased by roughly 19% (Grawert & Kim, 2022). Still, firearm-involved crime rates have remained constant (Saad, 2020). If a causal relationship exists between firearm ownership and victimization, these findings suggest that firearm ownership may do little to deter firearm-related violence.

Gun control policies that regulate firearm access and usage have been proposed as a public health initiative to reduce gun violence (Mahler & Fielding, 1977). Researchers have

urged U.S. policymakers to enact licensure, background check, and weapon tracking mandates to reduce gun violence risk. Available evidence suggests some classes of gun control policy are effective in reducing rates of firearm-involved suicide deaths, unintentional deaths, and violent crime without increasing victimization risk (Smart et al., 2023). Nonetheless, efforts to implement further gun control policies have been met with mixed reactions from the public. Following mass shootings that received substantial national news coverage, there was no evidence to suggest that state legislatures responded to these events by passing tighter gun control policies (Luca et al., 2020), and net public support for such policies remained static (Barney & Schaffner, 2019). This static public opinion may be an ecological fallacy resulting from groups in favor of and opposed to gun control becoming increasingly polarized following mass shootings (Barney & Schaffner, 2019).

Since 2015, many U.S. citizens have agreed that gun control policies should be stricter (Brenan, 2022). However, only approximately one-third of gun owners in the United States believe that the right to firearm ownership should be limited (Grene et al., 2023). Among gun owners, support for gun control policies is associated with an individual's personal values and political affiliation (Burton et al., 2021), but gun-owning Democrats and Republicans are both less likely to endorse such gun control policies than their non-gun-owning counterparts (Van Green, 2021). Furthermore, by framing gun ownership as a social identity and framing gun control policies as an existential identity threat, political action groups have politicized gun ownership and mobilized gun owners to engage in political advocacy that prevents the passage of tighter gun control policies (Lacombe, 2019). Consequently, gun owners' efforts to reduce their victimization risk may inadvertently undermine policies that would likely reduce their gun violence risk.

Relevant Psychological Theory

The TTM of behavior change was initially developed to summarize how behavior change occurs "both within and without therapy" (Prochaska & DiClemente, 1982). Observations of behavior changes amongst individuals who engaged in health risk behaviors led to the proposition that the change process occurs in stages, each marked by a set of beliefs about the behavior to be changed. The initial stage of *precontemplation* encompasses a heterogeneous group of individuals with internal and external contextual factors that result in low internal motivation to change (Kremers et al., 2001; Santiago-Rivas et al., 2012; Schorr et al., 2008). Clinicians are urged to help clients in precontemplation develop awareness of the possibility of change and understand the factors that contribute to their continued engagement in the target behavior (DiClemente & Velasquez, 2002; Krebs et al., 2018). Movement beyond precontemplation entails the development of recognition that a behavior is associated with adverse outcomes. Decisional balance measures have been used to investigate the relationship between trends in behavior-related attitudes and readiness for behavior change (Velicer et al., 1985). The movement from precontemplation to contemplation entails a shift from pro-status quo evaluations (i.e., more positive attitudes about current behaviors) to equal consideration of attitudes against and attitudes in favor of one's behavior (Prochaska et al., 1992).

Motivational interviewing techniques promote behavior change by helping clients explore their conflicting feelings about their behaviors (Rollnick & Miller, 1995). According to the *conflict resolution hypothesis*, change is driven by clients' exploration and resolution of ambivalence about changing their behavior (Magill & Hallgren, 2019). Although motivational interviewing's development was not guided by the principles of the TTM, the model provided a way to understand the approach's clinical function (Miller & Rollnick, 2009).

Movement from the precontemplation to contemplation stages of the TTM is associated with increased ambivalence (Armitage & Arden, 2007). Ambivalence serves as an important marker of treatment progress that provides information above and beyond what is communicated by pro-change language. Whereas the absolute amount of pro-change language is not associated with favorable clinical outcomes, the proportion of language in favor of behavior change is associated with reduced engagement in risky behaviors, and the proportion of language favoring maintaining current behaviors is associated with worse clinical outcomes (Magill et al., 2018).

Study Rationale

Deeper investigations into the working ingredients of motivational interviewing techniques may be informative to developing interventions to foster support for policies and behaviors that reduce gun violence risk. Gun violence risk interventions that integrate motivational interviewing have been shown to reduce weapon carrying (Nanney et al., 2018; Zatzick et al., 2014). In addition, motivational interviewing techniques have been used to promote safe firearm storage (Barkin et al., 2008) and may help promote the restriction of access to means to die by suicide (Britton et al., 2016).

The effect of gun control policy on gun violence risk suggests that opposition to such policies can be framed as a behavior that increases gun violence risk by affecting the policy's rippling effect across ecological systems. Ambivalence's role as an indicator of progression through the stages of the TTM and a process marker for budding motivation to change one's behavior may indicate that ambivalent gun violence prevention attitudes could provide additional information about behaviors associated with gun control policy opinions. Therefore, I plan to investigate (a) gun owners' attitudes toward different types of gun control categories, (b) the relationship between gun owners' ambivalence toward gun control policy and their engagement

in gun violence prevention, and (c) ambivalence's influence on the relationship between gun owners' gun policy attitudes and their willingness to participate in gun violence prevention. In the following sections, I will review the literature on gun control policy attitudes, ambivalence, and relevant behavior change theories before discussing the details of my project.

Literature Review

Attitudes Toward Gun Control

Gun control policies are a heterogeneous set of legal mandates enacted to reduce gun violence risk by regulating firearm use and access. As such, one way individuals express their willingness to reduce gun violence risk is through their support for gun control policies. In most instances, gun control policies are less likely to be supported by individuals who own firearms (Crifasi et al., 2021). There may be historical precedent for this, as research on the effects of gun control policy initially provided mixed support for their effectiveness in reducing homicide rates (Carrington, 1999; A. A. Leenaars & Lester, 2001; A. Leenaars & Lester, 1997; Lester & Murrell, 1982). Nonetheless, later systematic reviews have demonstrated that gun control policies could reduce firearm injury and violent crime risk (Smart et al., 2023). However, gun owners only conditionally support some effective policies (Grene et al., 2023).

Gun owners' reduced support for gun control policies has been attributed to their use of motivated reasoning (i.e., goal-motivated information processing) to protect their self-identity as a gun owner in response to firearm-related information (Carpenter, 2019; Kahan, 2012, 2017; Pierre, 2019). Individuals can unknowingly prioritize information that supports self-serving conclusions by engaging in motivated reasoning (Balcetis & Dunning, 2006; Kunda, 1990). Gun owners are both more likely to believe that firearms make their homes safer and less likely to believe that firearms compromise safety due to the possibility of accidents, suicides, or domestic

violence (Kellermann et al., 2000). Following mass shootings, gun owners are less likely than non-owners to attribute the act to gun ownership and more likely to believe that government intervention cannot reduce the frequency of mass shootings (Joslyn & Haider-Markel, 2017). Support for gun control policies varies, however; among gun owners in the United States, variation in gun control policy attitudes are associated with factors such as an individual's values (Merino, 2018), racial identity (Crifasi et al., 2021), political identity (Burton et al., 2021), and residence in areas where these laws are enforced (Crifasi et al., 2020).

Fear of crime is strongly associated with reduced support for gun control legislation (Dowler, 2002) and may explain some of the variation in gun owners' support for different types of gun control policy. Support for gun ownership is stereotypically associated with heightened fear of victimization (Pierre, 2019) and threat expectation (Bryan et al., 2020). Gun possession may symbolically mitigate fears, and firearm possession is associated with reduced fear of victimization (Dowd-Arrow et al., 2019). Indeed, fear motivates the acquisition of firearms, but reduced fear does not motivate firearm relinquishment (Hauser & Kleck, 2013). The complex relationship between fear and gun ownership is represented in gun owners' gun control policy preferences. Policies that create barriers to gun ownership for current legal gun owners receive less support from gun owners when compared to policies that target individuals ostensibly at increased risk of gun violence (Barry et al., 2013, 2018; Dixon et al., 2020; Kruis et al., 2023; Teret et al., 1998).

Gun owners' support of gun control policies is also influenced by self-interest (Wolpert & Gimpel, 1998) operating within the United States' unique sociocultural context. County-level firearm prevalence in the U.S. South is associated with the historical prevalence of slavery after controlling for measures of socioeconomic status, crime prevalence, racial segregation, and

partisanship (Buttrick & Mazen, 2022). Notably, the relationship between firearm ownership and the prior prevalence of slavery may be mediated by self-perceived safety. Stigma against racially marginalized groups has been linked to gun ownership (O'Brien et al., 2013) as well as support for policies that restrict access to firearms (Filindra et al., 2020; Hayes et al., 2021; Higginbotham et al., 2022). Indeed, after accounting for the relationship between cultural anxieties and protective gun ownership, biased racial beliefs are associated with opposition to gun control legislation (Filindra et al., 2020). United States citizens who face stigma due to severe and persistent mental disability are similarly seen as an acceptable target for gun control (Metzl & MacLeish, 2015), despite a lack of evidence demonstrating elevated risk of gun violence that can be solely attributed to severe mental illness (McGinty, Webster, & Barry, 2014; Zuriaga et al., 2021).

Much of the available research directly measuring gun owners' support for gun control policies does so on a per-policy basis and contributes to the literature by identifying policies likely to garner broad support from gun owners. Although some evaluations of gun owners' support for these policies have attempted to identify differences in support across broad policy types (e.g., Burton et al., 2021; Crifasi et al., 2021), investigation of heterogeneity of support within policy categories has been neglected. Given that prior research has suggested that there are patterns in gun owners' conditional support for gun control policy (Grene et al., 2023), it is unlikely that gun owners' gun control policy attitudes are monolithic. Gun owners' attitudes about specific policies could reflect their attitude toward the subjective category of policy (e.g., policies that create additional restrictions for law-abiding gun owners, policies that limit gun ownership for high-risk individuals, or policies that empower government agencies). For instance, although there is evidence that gun owners occasionally have consistent attitudes about

some types of gun control policies (i.e., background checks), there is variable support for gun control policies that restrict use as a punishment for certain criminal offenses (Barry et al., 2018). If gun owners have distinct gun control policy attitudes that favor restricting firearm access for stereotypically dangerous individuals, it could explain differing levels of support for firearm restrictions for people convicted of contact offenses and firearm restrictions for minors.

The Transtheoretical Model

The transtheoretical model of behavior change (commonly known as the transtheoretical model, stages of change model, or TTM) was developed to both identify clients' readiness for behavior change and the methods to facilitate behavior change (Prochaska & DiClemente, 1982). The model proposes that individuals can be classified into five stages based on their readiness to change: (a) precontemplation, wherein individuals do not intend to change their behavior and are unaware of the consequences of their behavior; (b) contemplation, wherein individuals become aware of their behavior's negative consequences and begin to consider behavior change; (c) preparation, wherein individuals begin to make plans for future behavior change; (d) action, wherein individuals are actively making behavior changes; and (e) maintenance, wherein individuals have changed their behavior and are working to prevent relapse to previous behaviors (Prochaska & Velicer, 1997). The model has been used as a framework to understand changes in health risk behaviors (Prochaska et al., 1992), intention to engage in health-promoting behaviors (Dunton et al., 2010), and receptivity to health messaging (Noar, 2017). Individuals' TTM stages of change have been found to be associated with both treatment attendance (Derisley & Reynolds, 2000) and treatment outcomes (Krebs et al., 2018). Notably, the model has also shown applicability in predicting other non-health-related behaviors (Klonek et al., 2015).

The TTM's use of decisional balance principles (Janis & Mann, 1977) suggests that attitudes about behavior change play a critical role within the model (Prochaska et al., 1994). Within the TTM, the balance between the pros and cons of behavior change varies between each stage, and individuals in precontemplation typically endorse more attitudes against new behaviors than in favor of new behaviors (Migneault et al., 2005; Prochaska et al., 1994). The TTM's *strong and weak principles* (Prochaska, 1994) state that movement across the stages of change is associated with a one standard deviation decrease in attitudes against behavior change and a 0.5 standard deviation increase in attitudes in favor of behavior change. Research has documented a "crossover" point in the TTM's contemplation or preparation stages where attitudes in favor of behavior change begin to outweigh attitudes against behavior change (Di Noia & Prochaska, 2010; Prochaska et al., 1994). When a crossover point was not observed, progression beyond precontemplation was associated with an increased likelihood of having an equivalent number of attitudes in favor of and against behavior change (Fava et al., 1995; Hall et al., 2007; Herrick et al., 1997; Prochaska, 1994; Sarkin et al., 2001).

Precontemplation's Complexity. The precontemplation stage of the TTM is occupied by individuals who have not begun to consider behavior change and are not likely to change their behavior in the next six months (DiClemente et al., 1991). In the precontemplation stage, the relatively high cost-to-benefit ratio for behavior change on decisional balance measures is reflective of a client's preference for continuing to engage in risk behavior. Individuals in this stage can identify benefits of changing their behavior but do not intend to change (Prochaska et al., 1993). Precontemplation may represent a broad range of attitudes about behavior because of its broad definition. Individuals within precontemplation may have many strong attitudes in favor of their current behavior, many strong attitudes against behavior change, or apathy toward

changing their behavior (Anatchkova et al., 2006; Kremers et al., 2001; Santiago-Rivas et al., 2012; Schorr et al., 2008). For example, gun owners who participate in activities associated with increased risk of firearm injury (e.g., gun ownership and opposition to gun control policies) without intention to change their behavior could be classified as being in precontemplation. Moreover, gun ownership may discourage future behaviors to reduce gun violence risk. The majority of gun owners cite self-protection as their reason for owning guns, but reductions in fear associated with gun ownership can prevent firearm relinquishment (Hauser & Kleck, 2013). Once individuals acquire firearms, motivated reasoning strategies increase their risk of neglecting the role of guns in gun violence (Joslyn & Haider-Markel, 2017), justifying the use of lethal force, and advocating for expanded gun rights (Stroebe et al., 2017). Indeed, individuals in precontemplation often discount the risks of their behavior, inflate the effort needed to change, and disproportionately focus on the negative consequences of changing their behavior (Walker Daniels & Murphy, 1997).

The TTM has received criticism on the basis of its stage-based approach to conceptualizing behavior change and reliance upon motivational interventions for those with no desire to change their behaviors (West, 2005). Despite evidence to suggest heterogeneity within the TTM's stages (e.g., Balmford et al., 2008; Schorr et al., 2008), the model's overarching concept of appropriate therapeutic responses remains useful (Armitage, 2009). The TTM proposes that individuals in the earliest stages of change should be provided with therapeutic interventions that draw attention to the behavior to be changed (Prochaska & Velicer, 1997). Cognitive and affective interventions that increase awareness of the benefits associated with change are indicated for individuals with the lowest behavior change intentions (Prochaska et al., 2013). Motivational Interviewing (Miller & Rollnick, 1991) has been recommended as an

intervention to address reduced intentions and preparedness to change behaviors by highlighting discrepant attitudes to create initial cognitive discomfort (Gerber & Basham, 1999). Because precontemplation has been defined by a relatively greater weighing of attitudes in favor of current behaviors (and attitudes against new behaviors) on decisional balance measures, the discomfort associated with awareness of discrepant attitudes has been proposed as a mechanism to diffuse precontemplative indifference (Petrocelli, 2002).

Ambivalence

Research on the TTM suggests that progression toward change entails a point at which individuals display equal endorsement of attitudes against and in favor of behavior change, consistent with increasing ambivalence (Armitage & Arden, 2007). Motivational interviewing research posits that this is because the development of ambivalence represents movement from precontemplation to contemplation (Miller & Rose, 2015). In fact, an initial task of motivational counseling is to create cognitive dissonance in clients to increase their awareness of the inconsistency between their verbalized attitudes and their behavior (Miller, 1983). Among gun owners, the development of ambivalence regarding their gun use behaviors and gun control policy preferences may motivate advancement along the stages of change for their gun violence risk behaviors. Although ambivalence is typically considered distinct from cognitive dissonance, both can be regarded as manifestations of cognitive inconsistency (Newby-Clark et al., 2002). Whereas cognitive dissonance refers to the psychological discomfort associated with inconsistent cognitions (Harmon-Jones & Mills, 2019), ambivalence is more directly related to the experience of inconsistent beliefs or affective evaluations (Jonas & Ziegler, 2007).

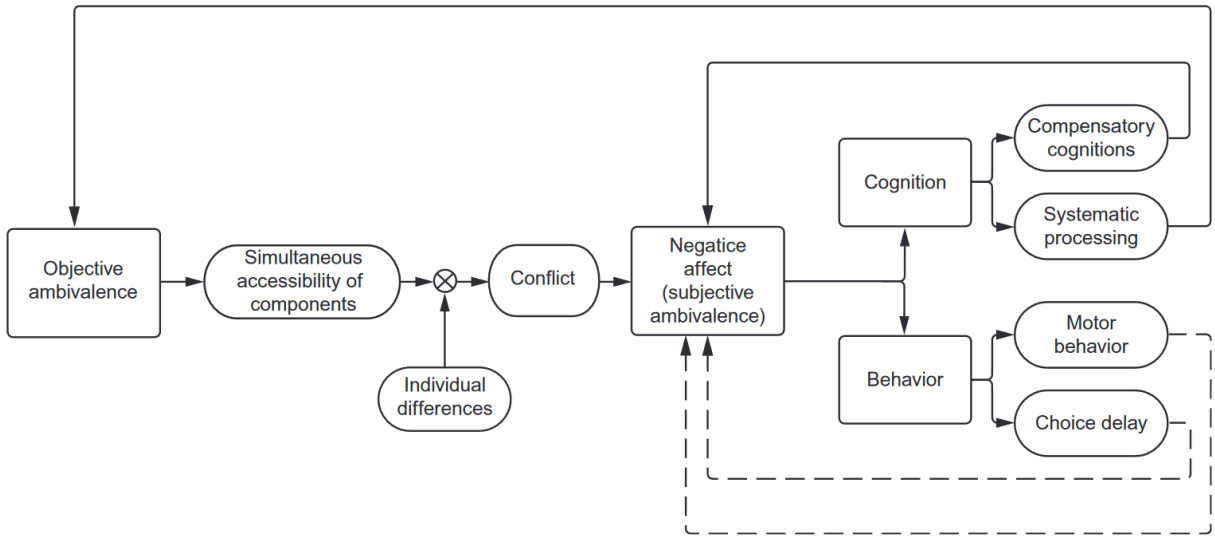
Due to its origins in attitude research, ambivalence was initially conceptualized as a cognitive-evaluative phenomenon in which topics simultaneously possess desirable and

undesirable characteristics (Scott, 1966). In multi-component models of attitudes, negative and positive attitude components are theorized to be relatively independent of each other and the sum of the components is correlated with the net attitude (Kaplan, 1972). Drawing from previous research on conflicting attitude components, Thompson and colleagues (1995) proposed that ambivalence is a) felt when positive and negative attitude components are of similar magnitude, b) negatively correlated with the difference between positive and negative attitude components, and c) greater when both positive and negative attitude components increase in magnitude. As such, Thompson and colleagues (1995) algebraically operationalized ambivalence as being the averaged magnitude of positive (P) and negative (N) attitude components minus the difference in magnitude between the components [i.e., $(P+N)/2 - |P-N|$]. This measure of ambivalence has been found to be moderately correlated with other proposed measures of attitude ambivalence (e.g., Jamieson, 1988; Kaplan, 1972; Katz et al., 1986) and has demonstrated discriminant validity (Riketta, 2000).

Although Thompson and colleagues' (1995) ambivalence measure (known as the Griffin Index) demonstrates sufficient content validity (Breckler, 1994), it only serves as a measure of the cognitive component (i.e., beliefs, attitudes, and evaluations) of ambivalence, which has an indirect effect on subsequent behavior. This objective measure of *potential ambivalence* is only moderately correlated with the subjective experience of *felt ambivalence*, which is believed to arise from an individual's awareness of inconsistent attitudes or evaluations (Newby-Clark et al., 2002; Priester & Petty, 1996; Thompson et al., 1995). The emotional conflict individuals feel when they become aware of potential ambivalence may motivate behavior change (van Harreveld et al., 2015), suggesting that the relationship between behavior and potential ambivalence may be mediated by the experience of felt ambivalence (DeMarree et al., 2014).

The ABC model of ambivalence (van Harreveld et al., 2015) proposes that the relationship between potential and felt ambivalence (named “objective” and “subjective”, respectively in Figure 1.1) is cyclical. Awareness of potential ambivalence produces felt ambivalence that influences subsequent cognitions and behaviors. Felt ambivalence motivates cognitive processes that result in an attentional preference for attitude-congruent information about unfamiliar topics (Sawicki et al., 2013). This selective processing of information consistent with prior attitudes reduces the aversive affective state associated with ambivalence (Nordgren et al., 2006). Notably, the ABC model of ambivalence proposes that there is no direct relationship between cognitions and behaviors, and any influence they may have on each other is mediated by affective states (van Harreveld et al., 2015). In this way, the model provides hypotheses for the mechanisms by which motivational interviewing uses ambivalence to induce discomforting affective states to increase willingness to participate in treatment.

Figure 1.1
ABC Model of Ambivalence



Ambivalence Across TTM Stages of Change

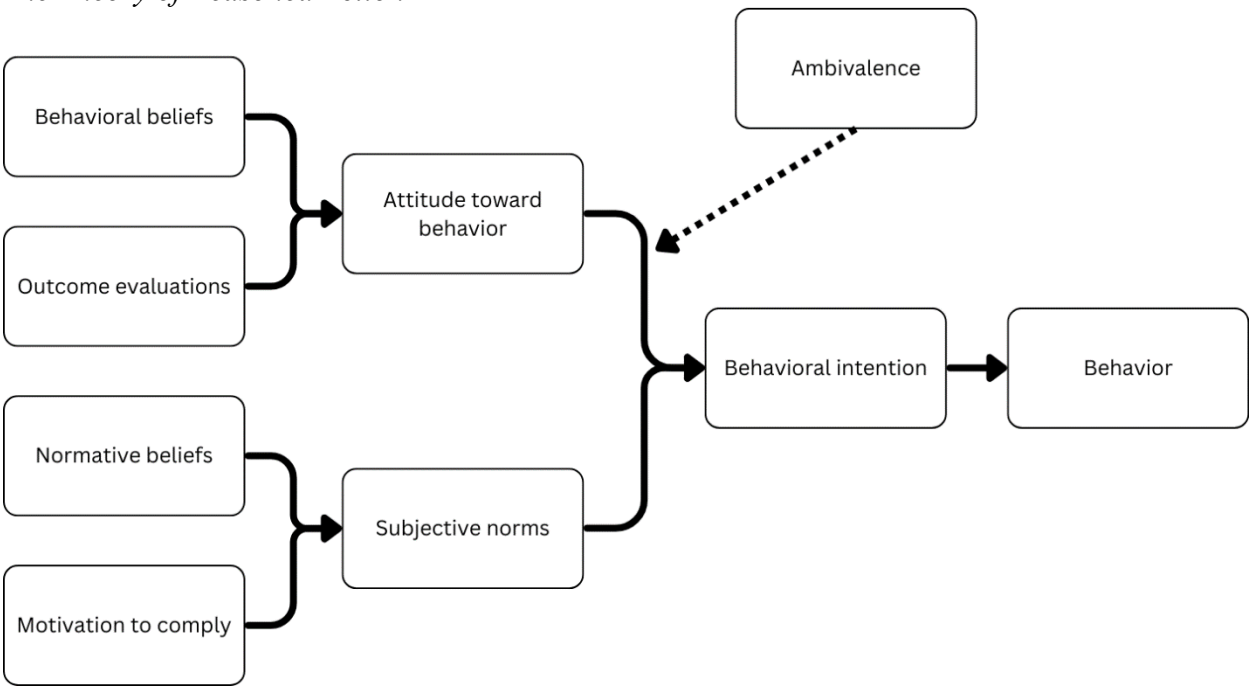
The decisional balance tools used within the TTM permit the simultaneous endorsement of negative and positive attitudes about behavior change, thus providing an approximation of ambivalence associated with each of the TTM's stages. The model's strong and weak principles for progressing from precontemplation to action (Prochaska, 1994) suggest that progression beyond precontemplation entails a reduction in change-inhibiting attitudes and an increase in change-promoting attitudes. Direct investigations of the relationship between ambivalence and the TTM have found a quadratic relationship between the stages of change and ambivalence, with ambivalence increasing between precontemplation and preparation (Armitage & Arden, 2007) and, more specifically, increasing between precontemplation and contemplation (Armitage et al., 2003). Ambivalence likely plays an important role for contemplators, as ambivalent individuals are more likely to be in contemplation than precontemplation (Lipkus et al., 2001). This finding may reflect the TTM's theoretical principles: individuals in contemplation are conceptualized as being aware of positive and negative attitudes about their behavior, resulting in ambivalence that can prevent further progression along the stages of change (Prochaska & Velicer, 1997).

Ambivalence, Attitudes, and Behavioral Intentions

Investigations of ambivalence's influence on behavior have primarily focused on its effect on behavioral intentions. The theory of reasoned action (TRA) (Ajzen & Fishbein, 1980) was developed to explain behaviors that occur under volitional and non-volitional control, as influenced by an individual's intention to perform that behavior (Ajzen, 1991; Hale et al., 2002). As shown in Figure 1.2, the theory posits that the intention to perform a behavior is informed by an individual's attitudes about performing the behavior and subjective norms (i.e., subjective

impression of social expectations about the behavior) (Hale et al., 2002). Ambivalence has been identified as a moderator of the relationship between attitudes and behavioral intentions through its influence on cognitive processing (Jonas et al., 1997).

Figure 1.2
The Theory of Reasoned Action



Note: Ambivalence's theorized role as a moderator between attitudes and behavioral intentions is noted in the figure.

Although considerable evidence supports ambivalence's influence on the relationship between attitudes and behavioral intentions (e.g., Bui et al., 2014; Hohman et al., 2014), findings have been inconsistent as to whether ambivalence strengthens or weakens the relationship. The association between attitudes and intentions has been found to be stronger in studies where participants were assigned to ambivalent and non-ambivalent experimental conditions (e.g., Jonas et al., 1997). However, when a continuous measure of ambivalence was used, greater levels of ambivalence were found to weaken the association between attitudes and behavioral intentions (e.g., Costarelli & Colloca, 2007; Faure et al., 2022; Sparks et al., 2001, 2004). The moderating effect of ambivalence has been hypothesized to be mediated by the importance of the

attitude, such that high levels of ambivalence weaken the relationship between attitude and attitude importance, which in turn weakens attitudes' influence on behavioral intentions (Costarelli & Colloca, 2007). Meta-analytic investigations of attitude-intention and attitude-behavior relationships further suggest that ambivalence moderates these relationships and that greater ambivalence weakens attitude's influence on intentions and behaviors (Cooke & Sheeran, 2004).

The TRA provides a framework to understand the relationship between gun-related attitudes and behaviors that affect gun violence risk (e.g., gun ownership and gun control policy opposition). Motivated reasoning strategies associated with gun ownership may discourage behavior-incongruent attitudes and increase the salience of behavior-congruent attitudes, resulting in strong intentions to engage in behavior that sustains gun ownership and related behaviors. Within this framework, ambivalence in the attitudes that promote gun violence risk behaviors could reduce the influence that these attitudes have on gun owners' intention to reduce gun violence risk (i.e., willingness to promote policy and practices that reduce gun violence). Generalizing from the TRA, ambivalence may reduce an individual's risk of engaging in motivated reasoning strategies that promote gun violence risk behaviors (Donovan et al., 2020; Lavine et al., 2012).

Study Rationale

Elevated gun violence has prompted calls for the passage of effective gun control policy. Such policies should not be framed as a panacea for all violent crime. The available evidence (e.g., Kleck & Patterson, 1993; Smart et al., 2023) indicates a nuanced relationship between gun control policies and violent crime, but it suggests a more explicit relationship between gun control policies and gun violence risk. Meaningful reductions in gun violence rates may be

achieved by increasing individual's behavioral intentions to reduce gun violence, as represented by their willingness to support and advocate for effective classes of gun control policy. Given gun owners' limited support for gun control policies, efforts to pass these policies would benefit from an increased understanding of gun owners' gun control policy attitudes. As a group, gun owners are more likely to believe that gun ownership bolsters personal safety (Ward et al., 2023), and some argue that guns symbolize safety in an unsafe world (Buttrick, 2020). Gun control policies may be viewed through a similar symbolic lens, considering that gun owners overwhelmingly support policies restricting the Second Amendment rights of individuals with mental illness (Burton et al., 2021). By understanding the nuances of gun owners' gun control policy attitudes, researchers can identify attitudes more amenable to gun violence risk reduction.

The characteristics associated with each of the TTM's stages can be applied to these attitudes to provide additional information about an individual's willingness to change behaviors associated with their gun control policy attitudes. The TTM's early stages of precontemplation and contemplation represent an important shift in behavior change. An individual's tendency to weigh both the costs and benefits associated with a behavior is correlated with their likelihood to consider changing the behavior. The ABC model of ambivalence suggests this is a function of ambivalence's impact on subsequent cognitions and behaviors. Illustrating this, ambivalence in the context of political attitudes can result in moderated political opinions and voting behavior (Meffert et al., 2018; Mulligan, 2013). No available research has directly investigated the relationship between ambivalence toward gun control policy and related gun violence risk behaviors.

Political action committees within the United States have effectively organized individuals who aim to maintain Second Amendment rights. The TRA suggests that the

effectiveness of these political action groups is a product of their appeal to individuals with the strongest attitudes, which is associated with an individual's intentions to engage in related behaviors (Kim et al., 2013). The literature currently lacks investigations of this relationship in the context of gun violence risk, particularly regarding the impact that ambivalence will have on a committed gun owner's likelihood of advocating for policies to reduce gun violence.

Study Aims

In my dissertation study, I sought to address the following gaps in the psychological and public health literature:

First, investigations of gun owners' gun control policy attitudes have primarily focused on individual policies. Studies that have attempted to measure patterns in gun policy attitudes (e.g., Meyler & Lester, 1997) have not taken into account participants' gun ownership status and, therefore, status-related perceptions of policies. Adjacent literature suggests that the psychosocial correlates of gun ownership may produce attitudes that vary across types of gun control policies, potentially different from those of previously studied populations. I addressed this gap by identifying different categories of gun control policy attitudes that reflect patterns in gun owners' policy preferences and, therefore, identify types of policies that may be perceived similarly.

Second, prior research has provided evidence of a relationship between ambivalence and the TTM's stages of change using direct measures of TTM stage [e.g., participants' endorsement of considering behavior change as seen in Armitage & Arden (2007)]. Such studies neglected to directly investigate the relationship between ambivalence and characteristics indicative of each stage of change. Additionally, it remains uncertain whether the characteristics associated with stages of change are differentially associated with engagement in risk behaviors. I examined whether gun owners' stage of change can be identified using the strength of attitudes in favor of

change, the strength of attitudes against change, potential ambivalence, and motivation to engage in activities associated with behavior change.

Third, the relationship between attitudes and related behavioral intentions has been well studied through the framework of the TRA. Applications of these models to policy advocacy intentions (e.g., Elias et al., 2019) have received limited attention. Furthermore, the literature lacks investigation of the relationship between policy attitudes and intentions to reduce gun violence within the context of gun ownership, wherein individuals stand to be negatively affected by their advocacy efforts. Understanding this relationship can allow policymakers and public health officials to identify gun owners who are more responsive to gun safety messaging and provide focused gun violence prevention initiatives to this group. Prior research demonstrates that most gun owners are supportive of gun violence prevention policies, but the gulf between support and action remains underexplored. I addressed this gap by identifying the impact of ambivalence on the relationship between gun policy attitudes and gun violence prevention advocacy.

Using data collected for the National Lawful Use of Guns Survey (NLUGS) (Siegel, 2022), I adressed these gaps in the literature by investigating the following research questions:
RQ1: What is the factor structure of gun owners' gun control policy attitudes? Namely, how many sub-types of gun control policy attitudes do gun owners display?

> **H1:** Responses patterns to the NLUGS gun control policy attitude items will indicate multiple sub-types of attitudes (e.g., policies that create additional restrictions for law-abiding gun owners, policies that limit gun ownership for high-risk individuals, or policies that empower government agencies).

RQ2: How are gun control policy attitudes and ambivalence toward gun control associated with gun owners' willingness to engage in gun violence prevention?

H2: The strength of attitudes against gun control, attitudes in favor of gun control, and the degree of ambivalence toward gun control will jointly and significantly predict an individual's gun violence advocacy behavioral intentions, which is reflective of their stage of change within the TTM. Specifically, individuals in precontemplation (as represented by having the weakest behavioral intentions) will have the lowest ambivalence and strongest attitudes against gun control policies. As individuals move across the stages of change (as represented by stronger behavioral intentions), they will have (a) relatively stronger attitudes in favor of gun control, (b) reduced engagement in precontemplation behaviors, (c) increased gun violence advocacy behavioral intentions, and (d) increases in ambivalence. Individuals in the latest stages of changes (i.e., action and maintenance) will have reduced ambivalence and the strongest attitudes in favor of gun control policy.

RQ3: How does ambivalence affect the relationship between gun control policy attitudes and related behavioral intentions?

H3: Replicating findings from prior investigations of the TRA, measures of ambivalence will moderate the relationship between gun control policy attitudes and behavioral intentions to reduce gun violence.

CHAPTER 2

METHOD

Participants

The sample for NLUGS is composed of 2,086 U.S. gun owners who were randomly sampled from a group of approximately 14,000 gun-owning members of the Ipsos KnowledgePanel (KP). The 55,000 adult participants of the panel were recruited using address-based probability sampling (Siegel, 2022). All U.S. households with a mailing address were eligible for participation in KP, and accommodations were provided for households without a computer or internet access. Underrepresented minority groups were oversampled in the panel. Participants were provided with a $10 incentive for completing the baseline survey.

Measures

Survey participants responded to items measuring their values, usage of firearms, engagement in firearm-related behaviors, firearm-related beliefs, and social identity as gun owners (Siegel, 2022). For this study, I used direct and proxy measures of gun control policy attitudes, ambivalence toward gun control policy, willingness to engage in gun violence prevention, and engagement in precontemplative behaviors.

Gun Control Policy Attitudes

Participants were asked to rate their level of support or opposition for 23 examples of gun control policy (e.g., “Preventing the mentally ill from purchasing guns” or “Prohibiting a person under the age of 21 from having a gun”). Most (96.9%) participants responded to all items, and Cronbach’s α for the 23-item scale is .87.

Ambivalence Toward Gun Policy Categories

Drawing from traditional measures of ambivalence used in the literature (Thompson et al., 1995), responses to each gun control policy item were assigned a positive (P) score indicating

the response represented an attitude in favor of a gun control policy or a negative (N) score indicating the response represented an attitude opposing a gun control policy. Items that proposed less strict gun control policies (e.g., "Shortening waiting periods for buying guns legally") were reverse-coded. Scores for each response are provided in Table 2.1. For each item, a response of "Strongly Support" was associated with a score of P = 2 and N = 0. A response of "Support" was associated with a score of P = 1 and N = 0. A response of "Strongly Oppose" was associated with a score of P = 0 and N = 2. A response of "Oppose" was associated with a score of P = 0 and N = 1. A response of "Neutral" was associated with a value of P = 0 and N = 0.

Table 2.1
Ambivalence Score Coding

Response	P	N
Strongly Support	2	0
Support	1	0
Neutral	0	0
Oppose	0	1
Strongly Oppose	0	2

For each subcategory (factor) of gun control policy identified through factor analyses, ambivalence scores were calculated using Thompson and colleagues' (1995) proposed index of (potential) ambivalence [i.e., (P+N)/2 - |P-N|]. In this index, a gun control policy attitude factor that contains *k* items had a P value of $(\sum_{i=1}^{k} P_i)$ and a N value of $(\sum_{i=1}^{k} N_i)$, such that P and N represented the sum of the positive and negative scores within the factor, respectively.

As an example, Table 2.2 demonstrates item scores for a hypothetical 4-item factor that received responses of Strongly Support, Strongly Support, Strongly Oppose, and Neutral.

Using Thompson and colleagues' (1995) ambivalence index, the responses to these items would yield an ambivalence score of (4+2)/2 - |4-2|] = 1.

Table 2.2
Example of Ambivalence Score Calculation

Items in Factor	P	N
Item 1	2	0
Item 2	2	0
Item 3	0	2
Item 4	0	0
Factor Level Total	4	2

Gun Violence Prevention Behavioral Intentions

Survey participants were asked to rate their level of agreement with 14 items related to gun violence and gun violence prevention. Eleven items measured gun owners' willingness to engage in gun violence prevention (e.g., "Would you contact a public official to express your support for a legislation designed to reduce gun violence?" and "Would you talk to your family members or friends about gun violence prevention?"). All items were responded to by 94.1% of participants, and Cronbach's α for the 11-item measure is .922.

Precontemplation Behaviors

Survey participants were asked how often they engage in 12 gun-related activities. From this list, two items measuring participants' engagement in activities to support and expand gun rights were used as proxy variables for behaviors indicative of precontemplation: "Taking part in a political activity to support gun rights" and "Donating money to support gun rights." The two items were responded to by 99.3% of participants, and Cronbach's α for the two items is .765.

Analysis Plan

Missing data were investigated using Little's test (Little, 1988), and modern methods were used to address missing data in the analyses. Given the complex survey design of the NLUGS that used national probability sampling, all analyses were adjusted using the survey weights constructed by the original survey developers. Table 2.3 presents a high-level summary of the analytic strategies that will be used to address each of my research questions, which I will now cover in greater detail.

Table 2.3
Summary of Research Aims

	Aim 1	Aim 2	Aim 3
Research Question	*What is the factor structure of gun owners' attitudes toward gun control policies?*	*How are gun control policy attitudes and ambivalence toward gun control associated with gun owners' willingness to engage in gun violence prevention?*	*How does ambivalence impact the relationship between gun control policy attitudes and related behavioral intentions?*
Analytic Strategy	Exploratory factor analysis and confirmatory factor analysis to identify the number of latent constructs of gun control policy attitudes.	Latent profile analysis to identify profiles representative of differing stages of change for gun violence prevention behaviors.	Structural equation modeling to estimate moderating effect of ambivalence on association between gun control policy attitudes and gun violence prevention behavioral intentions.

Research Question 1

Exploratory and confirmatory factor analyses were performed in the L*avaan* package of R (Rosseel et al., 2023) within RStudio version 2023.12.1+402 (RStudio Team, 2020). I conducted an exploratory factor analysis (EFA) using half of the original study's sample to identify latent categories of gun control policy attitudes captured by the items measuring gun control policy attitudes. Prior to statistical analyses, I randomly split the sample into separate

training and testing datasets, as random sample splitting was more likely to create equivalent subsamples as sample size increased (Lorenzo-Seva, 2022). A polychoric correlation matrix was created to account for possible violations of normality when using ordinal data (Flora & Flake, 2017). Bartlett's Test of Sphericity and the Kaiser, Meyer, Olkin (KMO) Test were performed to test if the data were appropriate for factor analysis. Factors were extracted using principal axis factoring and a diagonal weighted least squares (DWLS) estimation procedure, and oblimin oblique rotations were applied. Assessment of Eigenvalues, scree plots, parallel analyses, and minimum average partial methods were used to select the number of factors to retain (Zwick & Velicer, 1986). Strongly cross-loading items were constrained to the factor they loaded most strongly onto in subsequent factor analyses (Costello & Osborne, 2005).

A confirmatory factor analysis (CFA) was conducted with the other half of the sample to test the viability of the latent factors identified in the EFA. Items with large factor loadings (e.g., greater than 0.32) and no significant cross-loading were allowed to load freely onto their factors (Flora & Flake, 2017). Items with small factor loadings were not allowed to load onto those respective factors. Any remaining cross-loading items were constrained to their highest-loading factor. Models were estimated using DWLS, as recommended for ordinal data (Li, 2016). Absolute model fit was evaluated using the root mean square error of approximation (RMSEA) values of $\leq .06$ and standardized root mean square residuals (SRMR) $\leq .08$ (Hu & Bentler, 1999; Mueller & Hancock, 2008). Relative model fit was evaluated using the Comparative Fit Index (CFI) values of ≥ 0.95 and Tucker-Lewis Index values ≥ 0.95 (Hu & Bentler, 1999; Mueller & Hancock, 2008). When model fit indices indicated poor model fit, the disturbance terms of reverse coded items were allowed to correlate in subsequent models (Saris & Aalberts, 2003).

Research Question 2

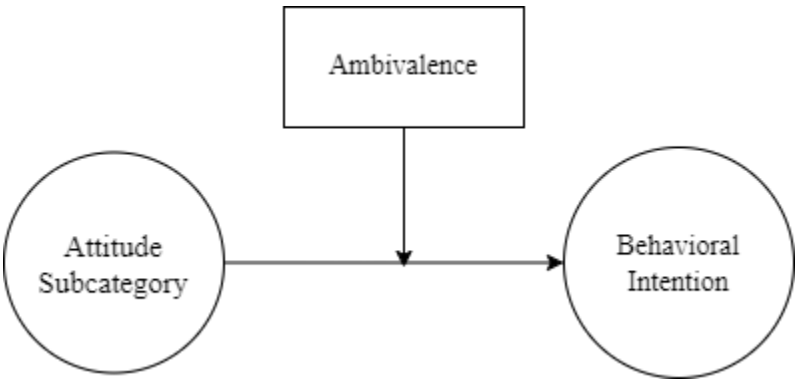
To investigate my second research question, I performed a latent profile analysis (LPA) to classify participants' stage within the TTM for each latent factor identified in the previous CFA. Data were prepared for analysis using the base package of R (R Core Team, 2023) within RStudio version 2023.12.1+402 (RStudio Team, 2020). All analyses were performed using MPlus Version 8.10 Base Program and Mixture Add-On (Muthén & Muthén, 2017). Prior investigations of attitudes within the TTM suggest that the strength of positive (i.e., support) and negative (i.e., opposition) components of behavior attitudes jointly influence an individual's stage of change and have separately assessed their influence (e.g., Prochaska et al., 1994). Participants' pro-gun control subcategory attitude score (as measured by the number of positive gun control policy subcategory attitudes endorsed), anti-gun control subcategory attitude score (as measured by the number of negative gun control policy subcategory attitudes endorsed), ambivalence score, and average score on gun violence prevention behavioral intentions items were used as indicators of latent profiles. Following recommendations to estimate one more class than proposed by theory (Ram & Grimm, 2009), up to six possible classes were investigated. Tests of multivariate normality were performed on indicator variables. As data violated the assumption of multivariate normality, I estimated models using maximum likelihood with robust standard errors (Spurk et al., 2020). A range of start values were used to ensure that a global maximum was found, and the number of random starts were increased until the best log-likelihood value was replicated (Berlin et al., 2014; Spurk et al., 2020). Estimated models were compared using standard fit criteria, and profiles were compared using the Akaike information criterion (AIC) and adjusted Lo-Mendell-Rubin test values. Latent profiles were interpreted on the basis of their similarity to the TTM's stages of change. To cross-validate the profiles, I

performed post-hoc multinomial regression to investigate differences between each latent profile's level of engagement in gun rights activism, which acted as a proxy for their relative stage of change.

Research Question 3

Finally, I used structural equation modeling (SEM) to investigate the hypothesized moderating effect of ambivalence on the relationship between gun control policy attitudes and gun violence prevention behavioral intentions. Models were estimated using the L*avaan* package of R (Rosseel et al., 2023) within RStudio version 2023.12.1+402 (RStudio Team, 2020). Figure 2.1 contains the predicted path structure for the relationship first latent gun control policy subcategory attitude factor, ambivalence toward this attitude subcategory, and gun violence prevention behavioral intentions.

Figure 2.1
Hypothesized Attitude-Behavioral Intention Path Structure



The number of latent attitude variables and indicators for each latent attitude variable were derived from the model identified through the CFA estimated to address Research Question 2. For each gun control policy subcategory attitude, a mean split was performed to sort participants into high-ambivalence and low-ambivalence groups. The survey items measuring willingness to engage in gun control activism served as indicators for the latent endogenous "Behavioral

Intention" variable that was predicted to influence responses to the items measuring gun violence prevention behavioral intentions. Initial CFA models containing all indicators for each control policy subcategory attitude and indicators for behavioral intentions were used to identify and address any misspecified relationships between survey items (Mueller & Hancock, 2008). Recommended model fit indices were used to assess model-data fit. Satisfactory model fit was defined as RMSEA ≤ .06 SRMR ≤ .08, and CFI ≥ 0.95 (Mueller & Hancock, 2008). If a model's SRMR ≤ .09, it was considered a good fit as long as CFI ≥ .96 or RMSEA ≤ .06 (Hu & Bentler, 1999; Mueller & Hancock, 2008). Chi-squared, RMSEA, SRMR, and CFI fit indices were reported, but Chi-squared significance testing was disregarded as a determinant of model fitness due to the index's inflated value for large sample sizes (Weston & Gore, 2006). In the event of poor model fit, I conducted post-hoc, but theoretically informed, modifications to the model.

I analyzed the influence of moderators in the hypothesized structural model using multiple group SEM analysis and comparing regression coefficients. Models were estimated using a maximum likelihood estimator with robust standard errors (MLR) to replicate the recommended conditions for modeling interaction effects in models with non-normal indicators (i.e., Schoemann & Jorgensen, 2021). Under conditions of non-normality and sufficient statistical power, MLR produces model-data fit comparable to other estimators suited for ordinal indicators (Bandalos, 2014; DiStefano & Morgan, 2014; Li, 2016).

CHAPTER 3

RESULTS

Research Question 1

Factor analyses were performed to estimate and validate the factor structure of gun owners' gun control policy attitudes and identify the number of gun control policy subcategories represented in the attitudes of a representative sample of gun-owning individuals from the United States. Sample demographics are presented in Table 3.1. Most participants (n = 2,022) provided responses to all gun control policy items. Results from Bartlett's test of Sphericity (χ^2 = 33,958.85, $p < 0.01$) and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO = 0.96) indicated that the 23 gun control policy items are related and, therefore, suitable for factor analysis.

Exploratory Factor Analysis

Half of the participants (n = 1,043) were randomly selected for a training dataset to be used in exploratory factor analyses. Again, most individuals (n = 1,015) within the training dataset provided responses to all gun control policy items within the survey. Preliminary analyses of the training dataset (χ^2 = 17,087.37, $p < .01$; KMO = .95) indicated that it was suitable for factor analysis. The bivariate correlations and descriptive statistics for the measures used in this analysis are presented in Table B1 in Appendix B.

For the initial EFA, models containing up to six factors were estimated. Analytic procedures to identify the number of factors indicated that either a two-factor (χ^2 = 1,448.877, $p < .01$; CFI = .941; $RMSEA$ = .072) or three-factor (χ^2 = 893.055, $p < .01$; CFI = .967; $RMSEA$ = .057) solution would be acceptable. Kaiser's rule (i.e., extracting factors with eigenvalues greater than one), the Minimum Average Partial (MAP) procedure, and visual analysis of Scree plots

Table 3.1
Sample Demographics

		Unweighted		Weighted	
	n	*M (SD)*	*%*	*M (SD)*	*%*
Age		55.92 (15.41)		51.63 (16.18)	
18-29	115		5.5%		8.7%
30-44	419		20.1%		28.9%
45-59	601		28.8%		27.7%
60+	951		45.6%		34.7%
Sex					
Male	1,518		72.8%		68.7%
Female	568		27.2%		31.3%
Children					
Number of children		0.43 (1.13)		0.54 (1.26)	
Live with children under 18	369		17.7%		22.6%
Political Party					
Republican	1,107		53.1%		51.3%
Independent	453		21.7%		22.8%
Democrat	522		25.0%		25.8%
Educational Attainment					
Less than high school	69		3.3%		6.6%
High school	514		24.6%		28.3%
Some college	713		34.2%		33.3%
Bachelor's degree or higher	790		37.9%		31.9%
Annual Income					
Less than $25,000	167		8.0%		8.1%
$25,000 to $49,999	329		15.8%		16.0%
$50,000 to $99,999	728		34.9%		34.2%
$100,000 or more	862		41.3%		41.7%
Race & Ethnicity					
White, non-Hispanic	1,740		83.4%		76.3%
Black, non-Hispanic	136		6.5%		8.2%
Other, non-Hispanic	42		2.0%		4.1%
Hispanic	113		5.4%		10.1%
Multiracial, non-Hispanic	55		2.6%		1.4%

suggested the presence of three factors. Parallel analysis and a revised MAP test with the average squared off-diagonal raised to the fourth power ($MAPr^4$) suggested the presence of two factors. However, methods to identify the number of factors to retain in EFA with categorical variables

[i.e., comparing RMSEA value and using a cut-value of .015 as suggested by Finch (2020)] suggested that a three-factor solution is appropriate. Given these statistical results, and the theoretical plausibility of the three-factor solution, I ultimately selected and interpreted the three-factor solution. Factor loadings from this three-factor solution are presented in Table 3.2, with significant loadings indicated in bold.

Table 3.2

Factor Loadings for Three-Factor Solution

Variable	f1	f2	f3
Factor 1: Unsafe Ownership			
Require background check for concealed carry	**.832**	.037	-.001
Prohibiting possession if risk to self/others	**.823**	**.115**	**-.102**
Ten-year restriction for serious juvenile offenses	**.804**	**-.098**	-.035
Prohibiting possession during DV restraining order	**.788**	.036	-.031
Preventing purchase if mentally ill	**.782**	**.080**	**-.198**
Barring purchase if on no-fly and watch list	**.755**	**-.088**	**.085**
Requiring a permit for concealed handgun carry	**.703**	**.151**	.016
Universal background checks	**.694**	.013	**.246**
Requiring safety course for purchase	**.574**	-.035	**.211**
Factor 2: Firearm Locations			
Restricting concealed carry in elementary schools	**.106**	**.885**	**-.081**
Allow teachers to carry in schools	**.078**	**-.812**	**-.077**
Restricting concealed campus carry	**.111**	**.769**	**.073**
Concealed carry in more places	**.078**	**-.713**	**-.190**
Factor 3: Increased Lethality			
Banning military-style semi-auto weapons	.057	**.204**	**.757**
Banning high-capacity magazines	.022	**.261**	**.722**

Note. Bolded values represent significant ($p < .05$) factor loadings

The three-factor solution explained 58.3% of the variance, and all factors were significantly correlated. Due to the number of items with statistically significant cross-loadings, only variables with loadings considered good (i.e., with factor loadings above .55), according to Comrey and Lee's (1992) EFA recommendations, were interpreted. As a result of this cutoff, the following variables were dropped from subsequent analyses: "*Prohibiting ownership under the age of 21,*" "*Ten-year restriction for drunk and disorderly conviction,*" "*Shorten wait period for*

legal purchases," "*Give LEOs discretion to approve concealed carry,*" "*Requiring a permit to purchase,*" "*Creating a federal database to track purchases,*" "*Requiring guns to be locked when unused,*" and *"Allowing negligent gun dealers to be sued.*" All factors demonstrated acceptable reliability (α = .882 for factor 1, α = .883 for factor 2, and α = .907 for factor 3) after dropping insufficiently-loading variables. The first factor ("Unsafe Ownership") had an eigenvalue of 11.718, explained 30.5% of the variance within the scale, and included items related to gun control policies that decrease the likelihood of unsafe gun ownership. Interpreted variables in this factor had absolute factor loadings ranging from .574 to .832. The second factor ("Firearm Locations") had an eigenvalue of 2.166 and explained 14.7% of the variance within the scale and included items related to gun control policies that impact the ability to lawfully carry firearms. Interpreted variables in this factor had absolute factor loadings ranging from .713 to .885. The third factor ("Increased Lethality") had an eigenvalue of 1.182 and explained 13.1% of the variance within the scale and included items related to gun control policies that affect the usage of firearms and accessories commonly associated with increased lethality. Interpreted variables in this factor had absolute factor loadings ranging from .722 to .757.

Confirmatory Factor Analysis

A confirmatory factor analysis (CFA) was then performed to investigate the validity of the hypothesized model of gun control policy attitudes identified in the previous EFA. The remaining half of the participants (n = 1,043) were filtered into a testing dataset. The majority of participants (n = 1,007) provided responses to all gun control policy items in the NLUGS dataset. To validate the factor structure of the gun control policy items, CFA was conducted using a DWLS estimation procedure appropriate for ordinal data. As this estimator makes no assumptions about the distribution of the observed variables, no investigations of normality,

kurtosis, or skewness were performed. The investigated model was composed of 15 out of the items from the NLUGS gun control policy scale and the three latent factors identified in the previous EFA. Each item was only allowed to load onto its original factors, and no cross-loading items were permitted. The model's factors were allowed to covary due to their hypothesized conceptual association and the usage of oblique rotations in the previous EFA.

The model successfully converged after 37 iterations. Relative model fit indices (*CFI* = .993, *TLI* = .991) suggested that the hypothesized model was acceptable when compared to null models. However, absolute fit indices were unable to reliably support the hypothesized model's overall goodness of fit (*RMSEA* = .062, *SRMR* = .059). In response, I attempted to improve the fit of the original CFA model by a) allowing the disturbance terms of the *"Restricting concealed carry in elementary schools"* and *"Allow teachers to carry in schools"* items to correlate due to both items being reverse coded, b) allowing the disturbance terms of the "*Concealed carry in more places*" and *"Allow teachers to carry in schools"* items to items to correlate due to both items being conceptually related to the expansion of gun carrying, and c) allowing the disturbance terms of the "*Restricting concealed carry in elementary schools*" and *"Allow teachers to carry in schools"* items to correlate due to both items referencing the availability of guns in primary education settings. Factor loadings for both models are shown in Table 3.3.

Analysis of this modified model successfully converged after 38 iterations. Relative model fit indices (*CFI* = .995, *TLI* = .993) continued to indicate that the modified model was acceptable when compared to null models. Indices of absolute fit now uniformly supported the modified model's overall goodness of fit (*RMSEA* = .055, *SRMR* = .054). All items significantly loaded onto their factors.

Table 3.3

Item Loadings for Original and Modified CFA Models

	Original CFA Model		Modified CFA Model	
	Estimated Factor Loading	*SE*	Estimated Factor Loading	*SE*
Factor 1: Unsafe Ownership				
Preventing purchase if mentally ill	.706	.013	.707	.013
Barring purchase if on no-fly and watch list	.712	.012	.712	.012
Prohibiting possession during DV restraining order	.749	.012	.749	.012
Universal background checks	.863	.011	.862	.011
Prohibiting possession if risk to self/others	.804	.012	.804	.012
Ten-year restriction for serious juvenile offenses	.617	.013	.617	.013
Require background check for concealed carry	.845	.011	.845	.011
Requiring safety course for purchase	.661	.012	.660	.012
Requiring a permit for concealed handgun carry	.839	.011	.839	.011
Factor 2: Firearm Locations				
Restricting concealed carry in elementary schools	.855	.011	.830	.012
Concealed carry in more places	-.832	.011	-.803	.017
Allow teachers to carry in schools	-.756	.012	-.653	.016
Restricting concealed campus carry	.922	.011	.956	.014
Factor 3: Increased Lethality				
Banning high-capacity magazines	.919	.011	.918	.011
Banning military-style semi-auto weapons	.942	.011	.942	.011

In summary, results from EFA and CFA models indicated participants expressed attitudes regarding three subcategories of gun control policy, including Unsafe Ownership policies that are designed to decrease the likelihood of risky gun ownership, Firearm Locations policies that affect where guns can be possessed, and Increased Lethality policies that regulate the availability of weapons and accessories believed to be associated with more deadly episodes of gun violence.

Research Question 2

LPA were next performed to classify participants' stage of change within the TTM based on their ambivalence, attitudes, and behavior change intentions for each of the three factors identified in the previous factor analyses. Models with up to six profiles were initially estimated

using the proportion of pro-gun control policy responses, the proportion of anti-gun control policy responses, ambivalence toward each gun control policy factor, and gun violence prevention intentions as indicators for profiles hypothesized to be theoretically consistent with the TTM's stages. The bivariate correlations and descriptive statistics for the measures used in this analysis are presented in Table B2 within Appendix B. Due to the multicollinearity between the pro-gun control policy attitude measure and anti-gun control policy measures, interpretable models could not be estimated due to the violation of the assumption of local independence within LPA. As such, follow-up analyses were performed wherein the two problematic measures were replaced by a single measure of attitude strength (i.e., each participant's estimated factor score). Following this change, all models converged successfully.

Prior to estimating profiles, the values of the ambivalence score indicator variable were standardized to aid interpretability. The multivariate distributions of the indicator variable were analyzed to determine if a maximum likelihood procedure would be appropriate to estimate profiles. Energy statistic tests suggested that indicators for the Unsafe Ownership ($\varepsilon = 60.548$, $p < .01$), Firearm Locations ($\varepsilon = 47.378$, $p < .01$), and Increased Lethality ($\varepsilon = 58.387$, $p < .01$) factors did not follow a multivariate normal distribution. As such, all profiles were estimated using Maximum Likelihood with robust standard error (MLR) procedure. Models containing 1-6 classes were estimated for each of the three gun control attitude factors. All models were estimated using 250 start values. Start values were allowed to go through a maximum of 250 iterations before converging, and the 50 best unique starts were carried out to completion. The best log-likelihood value was replicated for all estimated models, suggesting that identified solutions did not constitute local maxima. As recommended, all models were therefore re-run using twice as many random starts to ensure that estimated profiles were global maxima.

Unsafe Ownership

Table 3.4 contains the log-likelihood, descriptive statistics, and fit statistics for the estimated latent profile models associated with the first latent policy attitude factor (Unsafe Ownership). All estimated models demonstrated satisfactory entropy values (i.e., greater than 0.6); therefore, a more stringent recommended cutoff of 0.8 was used (Clark & Muthén, 2009). As the indicators in this model did not satisfy the multivariate normality assumption (E-statistic = 63.010, $p < 0.001$), models were evaluated based on their AIC and adjusted LMR values. Models with an increasing number of profiles demonstrated increasing AIC values. Therefore, the adjusted LMR was used to identify the point at which models are no longer superior to a more parsimonious model (i.e., a model with one fewer profile). Both the two-profile (a*djusted LMR* = 1438.748 $p < 0.0001$) and four-profile (a*djusted LMR* = 706.341, $p = 0.0051$) models demonstrated superior fit relative to models with one fewer profile. A four-profile model demonstrated superior absolute fit (*entropy* = 0.896; *AIC* = 15,986.339) when compared to a two-profile model (*entropy* = 0.752; *AIC* = 17567.764).

Table 3.4

LPA Model Fit Statistics for Unsafe Ownership Policy Attitudes

Model	Log Likelihood	AIC	Sample Size Adjusted BIC	adjusted LMR	p-value	Entropy	Smallest Class %	Largest Class %
1	-9,516.81	19,045.63	19,060.37	-	-	-	-	-
2	-8,773.88	17,567.76	17,592.34	1,438.75	< .001	.752	43.38%	56.62%
3	-8,339.91	16,707.81	16,742.21	840.43	.096	.834	16.18%	45.15%
4	-7,975.17	15,986.34	16,030.57	706.34	.005	.896	2.09%	45.00%
5	-7,694.59	15,433.19	15,487.25	543.36	.095	.869	2.17%	30.71%
6	-7,507.73	15,067.46	15,131.34	361.88	.316	.879	2.06%	28.02%

The four-profile model contained profiles representing between 2.09% and 45.00% of NLUGS survey participants. The mean indicator estimates are provided in Table 3.5 and

demographics for each estimated profile are provided in Table C1 within Appendix C. The model's four profiles appeared to share characteristics associated with the TTM's stages of change. Profile 1 (n = 43; Precontemplation) was estimated to have the lowest positive attitudes toward the Unsafe Ownership policy subcategory (M = -1.808, SE = 0.070, p < .001) and the lowest intention to engage in gun violence prevention (M = 2.587, SE = 0.792, p = .001). Notably, this profile was associated with a non-significant estimated mean for standardized ambivalence (M = -0.173, SE = 0.188, p = .356).

Table 3.5

Estimated Indicator Means for Unsafe Ownership Policy Attitude Profiles

	Attitude Subcategory Factor Score		Ambivalence		Behavioral Intentions	
Group	Estimated *M*	*SE*	Estimated *M*	*SE*	Estimated *M*	*SE*
Precontemplation	**-1.808**	0.070	-0.173	0.188	**2.587**	0.792
Contemplation	**-0.807**	0.020	**1.635**	0.065	**2.988**	0.162
Preparation	**-0.151**	0.020	**0.118**	0.036	**2.892**	0.093
Maintenance	**0.666**	0.022	**-0.970**	0.020	**3.829**	0.133

Note. Bolded values indicate p < .05

Profile 3 (n = 361; Contemplation) was estimated to have relatively greater positive attitudes toward the Unsafe Ownership policy subcategory (M = -0.807, SE = 0.020, p < .001) and greater intention to engage in gun violence prevention (M = 2.988, SE = 0.162, p < .001) when compared to the Precontemplation group. In addition, this group had the highest ambivalence of all estimated profiles (M = 1.635, SE = 0.065, p < .001). Multinomial logistic regression analyses indicated that relative to the Precontemplation group, increased pro-gun control subcategory attitudes (β = 169.163, SE = 0.901, p < .001), increased engagement in precontemplative behaviors (β = 73.338, SE = 1.535, p < .001), and decreased anti-gun control subcategory attitudes (β = -64.442, SE = 0.505, p < .001) were associated with an increased likelihood of membership in the Contemplation group.

Profile 4 (n = 947; Preparation) was estimated to have greater positive attitudes toward the Unsafe Ownership policy subcategory (M = -0.151, SE = 0.020, p < .001) and greater gun violence prevention behavioral intentions (M = 2.892, SE = 0.093, p < .001) than the Precontemplation and Contemplation profiles. The Preparation profile was estimated to have ambivalence (M = 0.118, SE = 0.036, p = .001) greater than the Precontemplation profile and less than the Contemplation profile. Multinomial logistic regression analyses indicated that relative to Contemplation, increased pro-gun control subcategory attitudes (β = 5.723, SE = 0.901, p < .001) and decreased anti-gun control subcategory attitudes (β = -11.539, SE = 1.921, p < .001) were associated with an increased likelihood of membership in the Preparation group. Increased engagement in precontemplative behaviors was not associated with an increased likelihood of membership in Preparation when compared to Contemplation (β = -1.736, SE = 1.535, p = .258). Relative to Precontemplation, increased engagement in precontemplative behaviors was associated with an increased likelihood (β = 71.632, SE < 0.001, p < .001) of membership in the Preparation group.

Finally, Profile 2 (n = 718; Maintenance) was estimated to have the greatest positive attitudes toward the Unsafe Ownership policy subcategory (M = 0.666, SE = 0.022, p < .001), the greatest gun violence prevention behavioral intentions (M = 3.829, SE = 0.133, p < .001), and the lowest ambivalence (M = -0.97 SE = 0.020, p < .001) of all estimated profiles. Multinomial logistic regression analyses indicated that relative to Preparation, increased pro-gun control subcategory attitudes (β = 3.789, SE = 0.417, p < .001) and decreased anti-gun control subcategory attitudes (β = -4.583, SE = 0.619, p < .001) were associated with an increased likelihood of membership in the Maintenance group. Increased engagement in precontemplative behaviors was not associated with an increased likelihood of membership in Maintenance when

compared to Preparation (β = 0.117, *SE* = 0.384, p = .760). Relative to Precontemplation, increased engagement in precontemplative behaviors was associated with an increased likelihood (β = 71.749, *SE* = 0.384, $p < .001$) of membership in the Maintenance group. Relative to Contemplation, increased engagement in precontemplative behaviors was not associated with a change in likelihood (β = -1.619, *SE* = 1.582, p = .306) of membership in Maintenance.

Firearm Locations

Table 3.6 contains the log-likelihood, descriptive statistics, and fit statistics for the estimated latent profiles associated with the second latent policy attitude factor (Firearm Locations). The recommended (Clark & Muthén, 2009) entropy cutoff of 0.8 was used to select models that were appropriate for interpretation. Model indicators did not satisfy the multivariate normality assumption (E-statistic = 49.5603, $p < .001$). Therefore, models were evaluated based on their AIC and adjusted LMR values. Models with an increasing number of profiles demonstrated decreasing AIC and increasing log-likelihood values. All models demonstrated satisfactory entropy (i.e., greater than 0.8). The adjusted LMR was investigated to identify the point at which models are no longer superior to a more parsimonious model. A five-profile model demonstrated acceptable absolute fit values (*entropy* = 0.849; *AIC* = 17496.024), and relative fit indices (a*djusted LMR* = 305.271, p = .0035) suggested that it was superior to a four-profile model. The mean indicator estimates are provided in Table 3.7 and demographics for each estimated profile are provided in Table C2 within Appendix C.

Table 3.6

LPA Model Fit Statistics for Firearm Locations Policy Attitudes

Model	Log Likelihood	AIC	Sample Size Adjusted BIC	adjusted LMR	p-value	Entropy	Smallest Class %	Largest Class %
1	-9,933.20	19,878.39	19,893.14	-	-	-	-	-
2	-9,690.64	19,401.28	19,425.86	469.73	< .001	.852	14.48%	85.52%
3	-9,074.30	18,176.60	18,211.01	1,193.60	< .001	.898	14.73%	68.02%
4	-8,883.65	17,803.29	17,847.54	369.22	.001	.835	12.43%	45.25%
5	-8,726.01	17,496.02	17,550.10	305.27	.004	.849	8.66%	37.10%
6	-8,572.08	17,196.16	17,260.07	298.11	.140	.865	4.23%	35.41%

Table 3.7

Estimated Indicator Means for Firearm Locations Policy Attitude Profiles

	Attitude Subcategory Factor Score		Ambivalence		Behavioral Intentions	
Group	Estimated *M*	*SE*	Estimated *M*	*SE*	Estimated *M*	*SE*
Precontemplation Attitudes	**-1.349**	0.028	**-1.465**	0.035	**3.249**	0.187
Precontemplation Behavior	**-0.477**	0.027	0.005	0.038	**2.962**	0.133
Contemplation	**0.180**	0.019	**0.901**	0.037	**2.897**	0.119
Preparation/Action	**0.796**	0.029	**-0.205**	0.063	**3.932**	0.226
Maintenance	**1.408**	0.028	**-1.419**	0.041	**4.366**	0.282

Note. Significant ($p < .05$) estimated values are in bold.

Profile 1 ($n = 253$; Precontemplation Attitudes) was estimated to have the lowest factor score for the Firearm Locations policy subcategory ($M = -1.349$, $SE = 0.029$, $p < .001$) and the lowest ambivalence score ($M = -1.465$, $SE = 0.035$, $p < .001$) of the estimated profiles. Despite this group's low subcategory attitude factor score, the gun violence prevention score was not the lowest among the groups ($M = 3.249$, $SE = 0.187$, $p < .001$). Profile 2 ($n = 569$; Precontemplation Behavior) appeared to be associated with a heterogeneous group of individuals who engage in precontemplative behaviors. Although this group was estimated to have higher factor scores for the Firearm Locations policy subcategory ($M = -0.477$, $SE = 0.027$, $p < .001$) than the Precontemplation Attitudes profile, this group was associated with a lower gun violence prevention behavioral intention score ($M = 2.962$, $SE = 0.133$, $p < .001$). Notably, a significant

mean ambivalence score was not estimated for this profile (M = 0.005, SE = 0.038, p = .888). Multinomial logistic regression analyses indicated that relative to the Precontemplation Attitudes profile, an individual's increased anti-gun control subcategory attitudes (β = 3.815, SE = 1.176, p = .001) and decreased pro-gun control subcategory attitudes (β = -28.103, SE = 4.603, p < .001) were associated with an increased likelihood of membership in this group. Changes in engagement in precontemplative behaviors were not associated with a differential chance of membership between the groups (β = 0.677, SE = 0.839, p = .420).

Profile 5 (n = 786; Contemplation) was associated with the highest mean ambivalence score (M = 0.901, SE = 0.037, p < .001) of the estimated profiles. In addition, the Contemplation group displayed a greater mean factor score for the Firearm Locations policy subcategory (M = 0.180, SE = 0.019, p < .001) and gun violence prevention behavioral intentions (M = 2.897, SE = 0.119, p < .001) than the Precontemplation Attitudes profile. Multinomial logistic regression analyses indicated that relative to the Precontemplation Attitudes
group, increased pro-gun control subcategory attitudes (β = 68.941, SE < 0.001, p < .001) and decreased anti-gun control subcategory attitudes (β = -24.096, SE = 2.535, p < .001) were associated with increased likelihood of membership in the Contemplation group. Relative to the heterogeneous Precontemplation Behavior profile, increased pro-gun control subcategory attitudes (β = 40.839, SE = 4.603, p < .001), decreased anti-gun control subcategory attitudes (β = -20.281, SE = 2.246, p < .001), and decreased precontemplative behavior scores (β = -1.519, SE = 0.535, p = .004) were associated with increased chance membership in the Contemplation group.

Profile 3 (n = 285; Preparation/Action) was estimated to have a greater mean factor score for the Firearm Locations policy subcategory (M = 0.769, SE = 0.029, p < .001) and gun violence

prevention behavioral intention scores (M = 3.932, SE = 0.226, p < .001) than the groups associated with the previous stages of the transtheoretical mode. In addition, the Preparation/Action profile was associated with reduced ambivalence (M = -0.205, SE = 0.063, p = .001) when compared to the Contemplation groups. Multinomial logistic regression analyses indicated that relative to the Contemplation group, increased pro-gun control subcategory attitudes (β = 23.039, SE = 0.187, p < .001) and decreased anti-gun control subcategory attitudes (β = -52.349, SE < 0.001, p < .001) were associated with increased likelihood of membership in the Preparation/Action group. Changes in precontemplative behavior scores were not associated with relative changes in the likelihood of group membership (β = -1.351, SE = 1.013, p = .183). Relative to the Precontemplation Behaviors group, higher precontemplative behavior scores were associated with a lower likelihood of membership in the Preparation/Action group (β = -2.870, SE = 1.146, p = .012).

Profile 4 (n = 177; Maintenance) was estimated to have the highest mean factor score for the Firearm Locations policy subcategory (M = 1.408, SE = 0.028, p < .001) and gun violence prevention behavioral intention score (M = 4.366, SE = 0.282, p < .001) of all estimated groups. The Maintenance group was associated with the second lowest ambivalence of all estimated profiles (M = -1.419, SE = 0.041, p < .001), higher only than the Precontemplation Attitudes profile. Multinomial logistic regression analyses indicated that relative to the Preparation/Action profile, increased pro-gun control subcategory attitudes (β = 77.145, SE = 0.187, p < .001) and decreased anti-gun control subcategory attitudes (β = -26.450, SE < 0.001, p < .001) were associated with increased likelihood of membership in the Maintenance group. This pattern held true when the Maintenance group was compared to all other estimated profiles. Notably, changes

in precontemplative behaviors were not associated with changes in the relative likelihood of membership in another group.

Increased Lethality

Table 3.8 contains the log-likelihood, descriptive statistics, and fit statistics for the estimated latent profiles associated with the third latent policy attitude factor (Increased Lethality). Model indicators did not satisfy the multivariate normality assumption (E-statistic = 60.750, $p < .001$). Therefore, models were evaluated based on their AIC, entropy, and adjusted LMR values. All models with greater than two profiles demonstrated satisfactory entropy (i.e., greater than 0.8). Multinomial logistic regressions to validate profiles could not be completed for five- and six-profile models. Therefore, these models were not considered for interpretation. Absolute model fit statistics (*entropy* = 0.944; *AIC* = 15625.54) supported the interpretation of a four-profile model. Relative model fit statistics failed to reject the null hypothesis that a three-profile model was superior to a four-profile model (a*djusted LMR* = 649.211, $p = .358$). Ultimately, a three-profile model demonstrated acceptable relative (a*djusted LMR* = 2085.034, $p < .0001$) and absolute fit (*entropy* = 0.904; *AIC* = 17533.09) and was selected for interpretation. The mean indicator estimates are provided in Table 3.9 and demographics for each estimated profile are provided in Table C3 within Appendix C.

Table 3.8

LPA Model Fit Statistics for Increased Lethality Policy Attitudes

Model	Log Likelihood	AIC	Sample Size Adjusted BIC	adjusted LMR	p-value	Entropy	Smallest Class %	Largest Class %
1	-10,035.48	20,082.95	20,097.71	-	-	-	-	-
2	-9,829.19	19,678.38	19,702.98	399.49	.002	.752	45.08%	54.92%
3	-8,752.55	17,533.09	17,567.53	2,085.03	< .001	.904	20.83%	52.10%
4	-8,417.31	16,870.63	16,914.90	649.21	.358	.944	19.64%	29.06%
5	-7,790.77	15,625.54	15,679.65	1,213.36	< .001	.977	0.78%	29.55%
6	-7,360.58	14,773.16	14,837.12	838.42	< .001	.992	0.78%	25.64%

Table 3.9

Estimated Indicator Means for Increased Lethality Policy Attitude Profiles

	Attitude Subcategory Factor Score		Ambivalence		Behavioral Intentions	
Group	Estimated *M*	*SE*	Estimated *M*	*SE*	Estimated *M*	*SE*
Precontemplation	**-1.179**	0.023	**-1.025**	0.016	**3.125**	0.143
Contemplation	**-0.064**	0.016	**0.820**	0.032	**2.948**	0.094
Post-Contemplation	**0.997**	0.029	**-0.789**	0.040	**3.864**	0.145

Profile 1 (n = 403; Precontemplation) was estimated to have the lowest mean attitude factor score for the Increased Lethality policy subcategory (M = -1.179, SE = 0.037, $p < .001$) and ambivalence score (M = -1.025, SE = 0.016, $p < .001$) of the three profiles. In addition, this group was estimated as having a higher mean gun violence prevention behavioral intention score than the Contemplation group (M = 3.125, SE = 0.143, $p < .001$). Multinomial logistic regression analyses indicated that relative to the Contemplation profile, individuals with fewer pro-gun control subcategory attitudes (β = -16.436, $SE < 0.001$, $p < .001$), greater anti-gun control subcategory attitudes (β = 16.669, $SE < 0.001$, $p < .001$), and greater engagement in precontemplative behaviors (β = 2.404, SE = 0.874, p = .006) had increased likelihood of membership in the Precontemplation group.

Profile 3 (n = 1,142; Contemplation) was associated with the highest mean ambivalence score (M = 0.820, SE = 0.032, $p < .001$) and lowest gun violence prevention behavioral intention score (M = 2.948, SE = 0.094, $p < .001$) of the estimated profiles. In line with theory, the Contemplation group had a policy subcategory attitude factor score between the two other estimated profiles (M = -0.064, SE = 0.016, $p < .001$).

Profile 2 (n = 528; Post-Contemplation) was associated with the greatest mean gun violence prevention behavioral intention score (M = 3.864, SE = 0.145, $p < .001$) and gun control policy attitude subcategory factor score (M = 0.997, SE = 0.029, $p < .001$). In addition, this

profile was estimated to have a mean ambivalence score below that of the Contemplation group (M = -0.789, SE = 0.040, $p < .001$). Multinomial logistic regression analyses indicated that relative to the Contemplation profile, individuals with more pro-gun control subcategory attitudes (β = 145.859, $SE < 0.001$, $p < .001$), fewer anti-gun control subcategory attitudes (β = -10.599, SE = 0.139, $p < .001$), and less engagement in precontemplative behaviors (β = -35.112, SE = 0.244, $p < .001$) had increased likelihood of membership in the Post-Contemplation group. Relative to the Precontemplation group, individuals with greater pro-gun control subcategory attitudes (β = 162.294, $SE < 0.001$, $p < .001$), fewer anti-gun control subcategory attitudes (β = -27.269, SE = 0.139, $p < .001$), and less engagement in precontemplative behaviors (β = -37.516, SE = 0.907, $p < .001$) had increased likelihood of membership in the Post-Contemplation group.

In summary, results from LPA indicated that groups could be distinguished using participants' attitude toward each gun control policy subcategory, their level of ambivalence toward each policy subcategory, and their intention to engage in gun violence prevention. The characteristics of the identified groups showed some similarity to those associated with the TTM's stages of change; however, the selected indicators appear to be insufficient/incomplete proxy measures for constructs associated with the stages.

Research Question 3

Structural equation modeling (SEM) was used to investigate the hypothesized moderating effect of ambivalence on the relationship between gun owners' attitudes toward gun control policy subcategories and behavioral intentions to engage in gun violence prevention. Prior to analyzing the data, all gun control policy items indicative of relaxing current gun control policies (e.g., allowing the usage of guns in more locations) were reverse coded to facilitate model convergence. The bivariate correlations and descriptive statistics for the measures used in this

analysis are presented in Table B3 within Appendix B. A two-step SEM approach was used, wherein the latent variable structure was initially validated through CFA, and the relationship between latent variables was estimated with SEM. In addition, as product-indicator approaches for modeling interactions between latent variables relied on operators unsuitable for ordinal data (i.e., multiplication of responses), multigroup SEM approaches were used to investigate the potential moderating effect of ambivalence on the attitude-intention relationship. For each latent gun control attitude factor, participants were placed into above-average and below-average ambivalence groups.

Prior to validating the structural models of each gun control attitude factor, an initial CFA was performed to assess if a one-factor model for the behavioral intentional items was defensible. This model was performed using a DWLS estimator and sampling weights. The initial model demonstrated acceptable relative model fit (*CFI* = .986, *TLI* = .983) but subpar values in measures of absolute model fit (χ^2 = 419.291, $p < .01$; *RMSEA* = .066, *SRMR* = .057). The model was modified such that the residual term of "*GVPI*: *Talking to gun owners about gun safety*" was allowed to covary with a) "*GVPI: Talking to other gun owners to gain support*" due to both items referring to speaking to other gun owners, b) "*GVPI: Talking to family/friends about GV*" due to both items asking if the participant would be willing to speak to others, and c) "*GVPI: Teach a group of youth about gun safety*" due to both items referencing gun safety. The modified model continued to demonstrate acceptable relative model fit (*CFI* = .997, *TLI* = .996) and now also demonstrated acceptable absolute model fit (χ^2 = 116.285, $p < .01$; *RMSEA* = .031; *SRMR* = .033). These residual terms were therefore allowed to covary in all subsequent analyses.

Measurement Model Analysis

Initial multiple group CFA with a diagonal weighted least squares estimator and sampling weights were performed to validate the measurement models containing each of the latent gun control attitude subcategory factors and the gun violence prevention behavioral intention items.

Analysis of the measurement model containing the Unsafe Ownership gun control attitude factor and the latent behavioral intention variable showed acceptable absolute fit (χ^2 = 1,036.197, $p < .01$; *RMSEA* = .047; *SRMR* = .060) and relative model fit (*CFI* = .960, *TLI* = .954) therefore no additional modification to the model were made. Estimated factor loadings for the model are presented in Table 3.10.

Initial analysis of a measurement model containing the Firearm Locations gun control attitude factor and the latent behavioral intention variable showed an acceptable relative fit (*CFI* = .985, *TLI* = .982) but marginal absolute fit (χ^2 = 812.751, $p < .01$; *RMSEA* = .062, *SRMR* = .077). In addition, standard errors for model estimates could not be calculated, suggesting the model was not identified. After allowing the error terms between the pair of reverse-coded items and a pair of items referencing concealed carry to covary, the model demonstrated acceptable absolute fit (χ^2 = 729.576, $p < 0.01$; *RMSEA* = 0.059; *SRMR* = 0.074) and relative fit (*CFI* = 0.987, *TLI* = 0.984). Estimated factor loadings for the identified modified model are presented in Table 3.11.

Table 3.10

Estimated Item Loadings for Unsafe Ownership CFA Model

	High Ambivalence		Low Ambivalence	
Variable	Estimate	SE	Estimate	SE
Unsafe Ownership Attitudes				
Preventing purchase if mentally ill	**0.493**	0.021	**0.541**	0.019
Barring purchase if on no-fly and watch list	**0.498**	0.021	**0.550**	0.018
Prohibiting possession during DV restraining order	**0.444**	0.021	**0.664**	0.018
Universal background checks	**0.600**	0.021	**0.730**	0.018
Prohibiting possession if risk to self/others	**0.632**	0.022	**0.668**	0.018
Ten-year restriction for serious juvenile offenses	**0.363**	0.021	**0.591**	0.017
Require background check for concealed carry	**0.712**	0.022	**0.782**	0.019
Requiring safety course for purchase	**0.363**	0.021	**0.544**	0.018
Requiring a permit for concealed handgun carry	**0.620**	0.021	**0.661**	0.018
Behavioral Intentions				
Contacting public official to support policy	**2.397**	0.091	**2.915**	0.109
Donating to a GV prevention organization	**1.589**	0.067	**2.235**	0.087
Talking to family/friends about GV	**1.946**	0.095	**2.207**	0.102
Attending a public health policy discussion	**2.388**	0.093	**2.852**	0.107
Testifying in favor of policy at a public hearing	**2.195**	0.082	**2.813**	0.103
Writing a letter to the editor supporting policy	**2.162**	0.080	**2.753**	0.099
Comment on an online policy discussion	**2.111**	0.078	**2.583**	0.096
Talking to other gun owners to gain support	**2.537**	0.098	**2.810**	0.106
Talking to non-gun owners gain support	**2.495**	0.095	**2.865**	0.105
Talking to gun owners about gun safety	**1.800**	0.108	**2.278**	0.117
Teach a group of youth about gun safety	**1.618**	0.095	**1.990**	0.104

Note. $p < .05$ for bolded items

Multiple group CFA of the measurement model containing the third latent gun control policy attitude could not be completed due to a lack of responses across categorical levels to the "*Banning high-capacity magazines*" item among the Low Ambivalence group. In an attempt to remedy this, the analysis was re-run with the latent attitude indicators treated as interval data and constrained as having equal variance to facilitate model identification. Ultimately, the model failed to demonstrate an acceptable absolute fit ($\chi^2 = 477.289$, $p < .01$; *RMSEA* = .087; *SRMR* = .066) despite having an acceptable relative fit (*CFI* = .974, *TLI* = .968), and was therefore dropped from subsequent analyses.

Table 3.11

Estimated Item Loadings for Firearm Locations CFA Model

	High Ambivalence		Low Ambivalence	
Variable	Estimate	SE	Estimate	SE
Firearm Locations Attitudes				
Restricting concealed carry in elementary schools	**1.153**	0.366	**0.977**	0.011
Concealed carry in more places	-0.026	0.025	**0.911**	0.016
Allow teachers to carry in schools	**0.128**	0.042	**0.923**	0.011
Restricting concealed campus carry	**0.324**	0.103	**0.950**	0.011
Behavioral Intentions				
Contacting public official to support policy	**2.509**	0.083	**3.245**	0.127
Donating to a GV prevention organization	**1.919**	0.069	**2.383**	0.096
Talking to family/friends about GV	**2.037**	0.087	**2.227**	0.116
Attending a public health policy discussion	**2.576**	0.086	**2.713**	0.119
Testifying in favor of policy at a public hearing	**2.378**	0.076	**2.780**	0.118
Writing a letter to the editor supporting policy	**2.308**	0.075	**2.808**	0.113
Comment on an online policy discussion	**2.202**	0.073	**2.670**	0.110
Talking to other gun owners to gain support	**2.599**	0.087	**2.696**	0.117
Talking to non-gun owners gain support	**2.623**	0.086	**2.701**	0.115
Talking to gun owners about gun safety	**2.179**	0.102	**1.316**	0.110
Teach a group of youth about gun safety	**2.079**	0.092	**0.917**	0.092

Note. $p < .05$ for bolded items

Post-hoc Measurement Models. In an attempt to investigate the relationship between the Increased Lethality latent gun control policy factor and behavioral intentions, I used multigroup CFA to estimate a measurement model containing all latent gun control policy attitude factors and the latent behavioral intention variable (see Figure 3.1). Variable abbreviations are defined in Table D1. Again, survey items associated with the third latent gun control attitude factor were treated as interval data to facilitate multigroup analysis. Analysis of this model indicated that it demonstrated acceptable relative (*CFI* = .978, *TLI* = .975) and absolute model fit (χ^2 = 2,276.842, $p < .01$; *RMSEA* = .055; *SRMR* = .079). Estimated factor loadings for the model are presented in Table 3.12.

Table 3.12

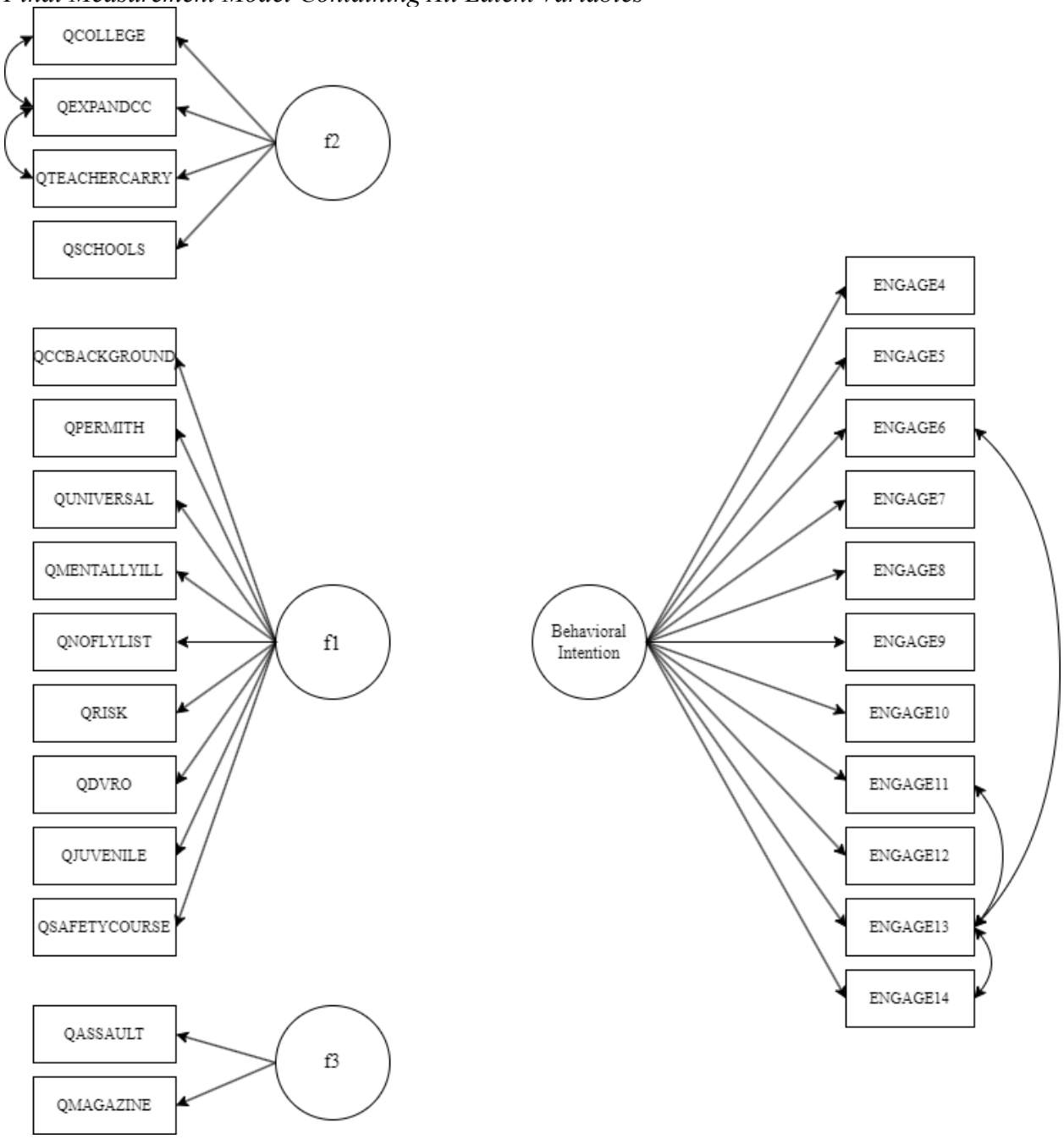
Estimated Item Loadings for Omnibus CFA Model

	High Ambivalence		Low Ambivalence	
Variable	Estimate	SE	Estimate	SE
Unsafe Ownership Attitudes				
Preventing purchase if mentally ill	**0.665**	0.013	**0.763**	0.012
Barring purchase if on no-fly and watch list	**0.611**	0.014	**0.791**	0.011
Prohibiting possession during DV restraining order	**0.720**	0.013	**0.811**	0.011
Universal background checks	**0.749**	0.012	**0.894**	0.010
Prohibiting possession if risk to self/others	**0.760**	0.013	**0.864**	0.011
Ten-year restriction for serious juvenile offenses	**0.586**	0.013	**0.717**	0.012
Require background check for concealed carry	**0.828**	0.013	**0.890**	0.010
Requiring safety course for purchase	**0.595**	0.014	**0.723**	0.012
Requiring a permit for concealed handgun carry	**0.752**	0.013	**0.883**	0.010
Firearm Locations Attitudes				
Restricting concealed carry in elementary schools	**0.833**	0.020	**0.926**	0.010
Concealed carry in more places	**0.629**	0.028	**0.809**	0.015
Allow teachers to carry in schools	**0.684**	0.019	**0.785**	0.012
Restricting concealed campus carry	**0.834**	0.021	**0.950**	0.011
Increased Lethality Attitudes				
Banning high-capacity magazines	**0.508**	0.028	**1.904**	0.250
Banning military-style semi-auto weapons	**0.706**	0.040	**1.919**	0.252
Behavioral Intentions				
Contacting public official to support policy	**2.589**	0.085	**3.419**	0.117
Donating to a GV prevention organization	**1.836**	0.066	**2.860**	0.097
Talking to family/friends about GV	**2.158**	0.086	**2.318**	0.108
Attending a public health policy discussion	**2.529**	0.084	**2.520**	0.108
Testifying in favor of policy at a public hearing	**2.392**	0.078	**2.697**	0.104
Writing a letter to the editor supporting policy	**2.338**	0.076	**2.813**	0.102
Comment on an online policy discussion	**2.227**	0.071	**2.551**	0.101
Talking to other gun owners to gain support	**2.586**	0.087	**2.526**	0.103
Talking to non-gun owners gain support	**2.633**	0.086	**2.462**	0.104
Talking to gun owners about gun safety	**2.028**	0.099	**0.909**	0.104
Teach a group of youth about gun safety	**1.910**	0.090	**0.590**	0.092

Note. $p < .05$ for bolded items

Figure 3.1

Final Measurement Model Containing All Latent Variables



Structural Model Analysis

Multigroup SEM regression analyses were used to estimate the relationship between gun control policy attitudes and behavioral intentions hypothesized by the TRA and investigate

ambivalence's impact on that relationship. All models were estimated using a sampling weight-informed robust maximum likelihood procedure.

The estimated model for the first latent gun control factor is depicted in Figure 3.2. The structural model continued to demonstrate acceptable absolute fit (χ^2 = 1,082.669, $p < .01$; *RMSEA* = .048; *SRMR* = .048) but somewhat reduced relative fit (*CFI* = .940, *TLI* = .932) when compared to the measurement model. All indicators associated with the latent variable continued to significantly load onto each latent variable across both groups. Estimated path coefficients for the model are presented in Table 3.13. Regression analyses did not provide sufficient evidence to support a relationship between latent gun control attitudes and behavioral intentions within High Ambivalence (β = 0.050, *SE* = 0.055, p = .367) or Low Ambivalence groups (β = 0.102, *SE* = 0.083, p = .219).

Figure 3.2
Structural Model for First Latent Gun Control Analysis

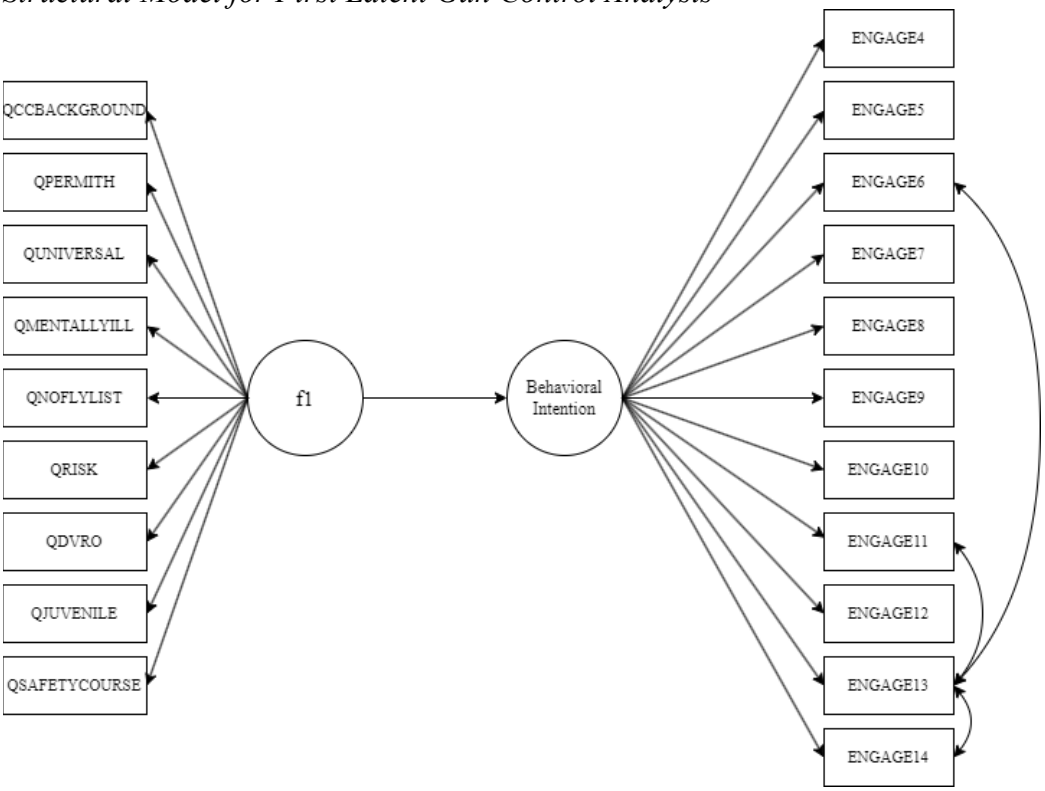


Table 3.13

Estimated Path Coefficients for Unsafe Ownership-Intentions SEM Model

	High Ambivalence		Low Ambivalence	
Variable Path	Estimate	SE	Estimate	SE
Latent Variable Indicators				
Unsafe Ownership Attitudes ← Preventing purchase if mentally ill	**0.363**	0.056	**0.369**	0.086
Unsafe Ownership Attitudes ← Barring purchase if on no-fly and watch list	**0.537**	0.060	**0.480**	0.076
Unsafe Ownership Attitudes ← Prohibiting possession during DV restraining order	**0.394**	0.058	**0.515**	0.077
Unsafe Ownership Attitudes ← Universal background checks	**0.661**	0.055	**0.539**	0.071
Unsafe Ownership Attitudes ← Prohibiting possession if risk to self/others	**0.499**	0.056	**0.494**	0.079
Unsafe Ownership Attitudes ← Ten-year restriction for serious juvenile offenses	**0.288**	0.052	**0.495**	0.071
Unsafe Ownership Attitudes ← Require background check for concealed carry	**0.632**	0.056	**0.517**	0.083
Unsafe Ownership Attitudes ← Requiring safety course for purchase	**0.410**	0.061	**0.466**	0.072
Unsafe Ownership Attitudes ← Requiring a permit for concealed handgun carry	**0.677**	0.058	**0.519**	0.077
Behavioral Intentions ← Contacting public official to support policy	**2.396**	0.104	**2.863**	0.093
Behavioral Intentions ← Donating to a GV prevention organization	**1.620**	0.136	**2.234**	0.123
Behavioral Intentions ← Talking to family/friends about GV	**1.934**	0.109	**2.136**	0.098
Behavioral Intentions ← Attending a public health policy discussion	**2.339**	0.096	**2.822**	0.089
Behavioral Intentions ← Testifying in favor of policy at a public hearing	**2.217**	0.110	**2.757**	0.103
Behavioral Intentions ← Writing a letter to the editor supporting policy	**2.158**	0.117	**2.746**	0.105
Behavioral Intentions ← Comment on an online policy discussion	**2.111**	0.118	**2.580**	0.114
Behavioral Intentions ← Talking to other gun owners to gain support	**2.533**	0.098	**2.825**	0.096
Behavioral Intentions ← Talking to non-gun owners gain support	**2.485**	0.102	**2.828**	0.101
Behavioral Intentions ← Talking to gun owners about gun safety	**1.878**	0.113	**2.424**	0.109
Behavioral Intentions ← Teach a group of youth about gun safety	**1.628**	0.124	**2.121**	0.131
Indicator Covariances				
Talking to gun owners about gun safety ↔ Talking to family/friends about GV	**1.257**	0.311	**1.454**	0.316
Talking to gun owners about gun safety ↔ Talking to other gun owners to gain support	**0.543**	0.182	**0.947**	0.212
Talking to gun owners about gun safety ↔ Teach a group of youth about gun safety	**5.752**	0.441	**3.740**	0.413
Latent Variable Regression				
Behavioral Intentions ← Unsafe Ownership Attitudes	0.050	0.055	0.102	0.083

Note. $p < .05$ for bolded items

The estimated model for the second latent gun control factor is depicted in Figure 3.3. The structural model continued to demonstrate acceptable absolute fit ($\chi^2 = 730.359$, $p < .01$; *RMSEA* = .059; *SRMR* = .068), but marginal relative fit (*CFI* = .947, *TLI* = .934) when compared to the measurement model. Estimated path coefficients for the model are presented in Table 3.14. Analysis of the structural model indicated that the "*Concealed carry in more places*" item was not significantly associated (β = -0.022, *SE* = 0.045, p = .621) with the second gun-control attitude factor in the High Ambivalence group despite maintaining a significant association (β = 1.378, *SE* = 0.030, $p < .001$) in the Low Ambivalence group. Differences in the relationship between the second latent gun control attitude and behavioral intention among the groups were observed. A significant relationship between the variables (β = 0.295, *SE* = 0.048, $p < .001$) was identified within the Low Ambivalence group but was not present (β = 0.046, *SE* = 0.055, p = .406) in the High Ambivalence group.

Figure 3.3

Structural Model for Second Latent Gun Control Analysis

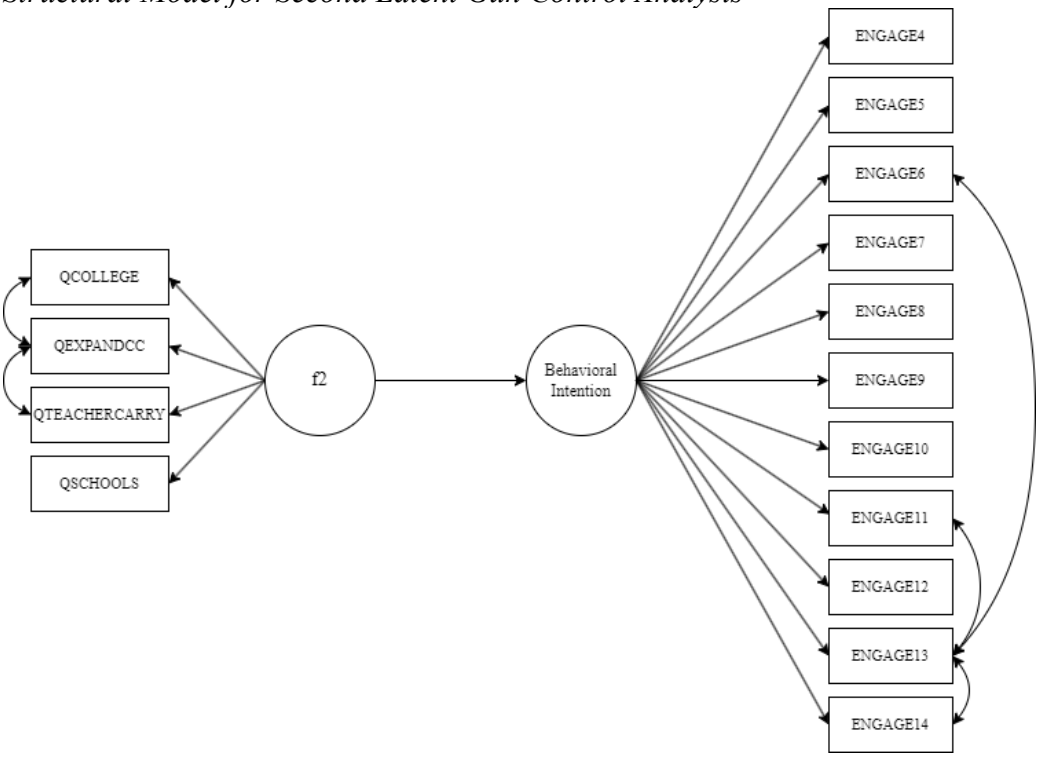


Table 3.14

Estimated Path Coefficients for Firearm Locations-Intentions SEM Model

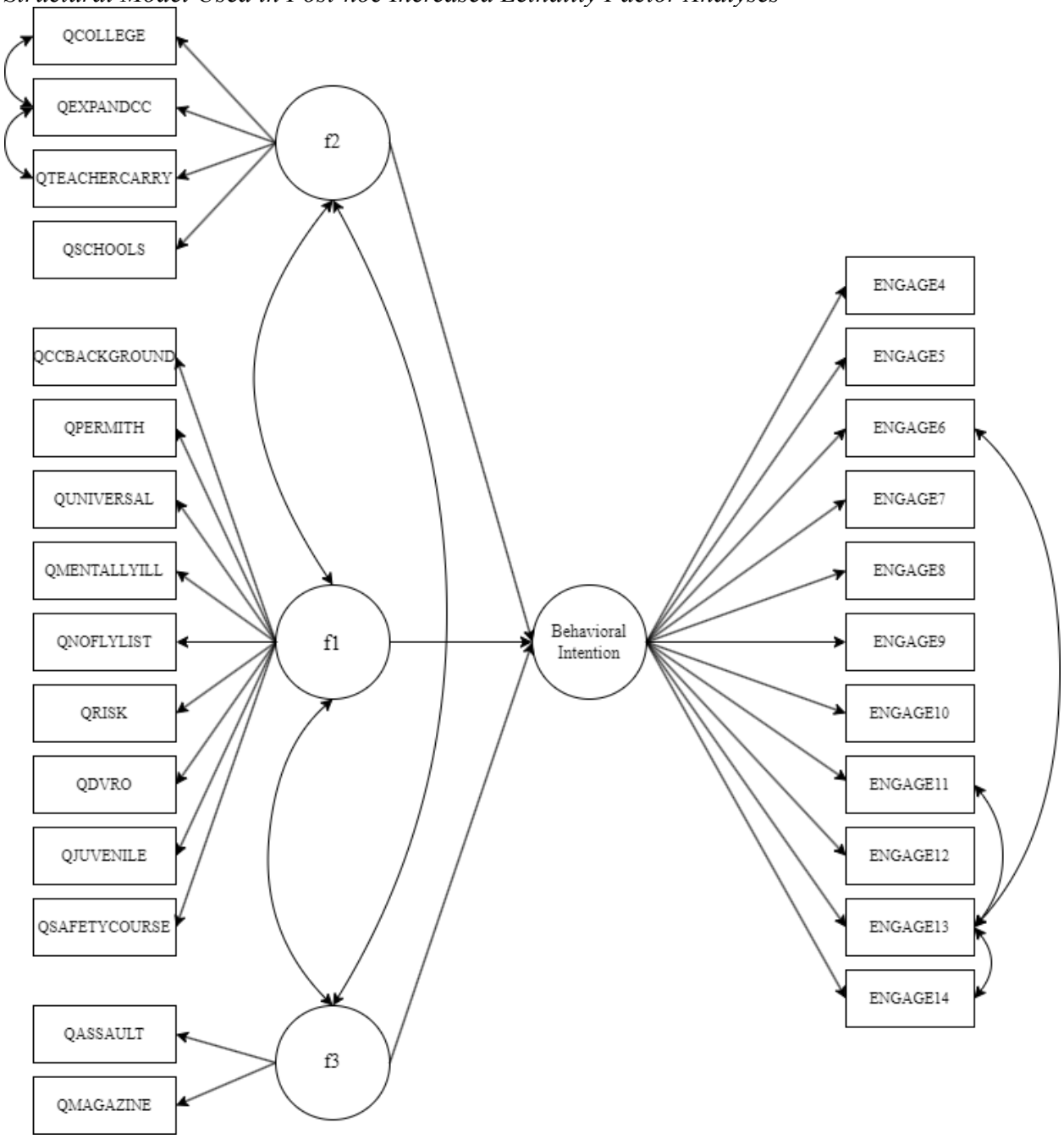
	High Ambivalence		Low Ambivalence	
Variable Path	Estimate	SE	Estimate	SE
Latent Variable Indicators				
Firearm Locations Attitudes ← Restricting concealed carry in elementary schools	**0.829**	0.244	**1.606**	0.026
Firearm Locations Attitudes ← Concealed carry in more places	-0.022	0.045	**1.378**	0.030
Firearm Locations Attitudes ← Allow teachers to carry in schools	**0.152**	0.071	**1.453**	0.030
Firearm Locations Attitudes ← Restricting concealed campus carry	**0.381**	0.115	**1.605**	0.025
Behavioral Intentions ← Contacting public official to support policy	**2.497**	0.097	**2.854**	0.090
Behavioral Intentions ← Donating to a GV prevention organization	**1.937**	0.125	**2.079**	0.120
Behavioral Intentions ← Talking to family/friends about GV	**2.007**	0.092	**2.137**	0.113
Behavioral Intentions ← Attending a public health policy discussion	**2.544**	0.083	**2.646**	0.099
Behavioral Intentions ← Testifying in favor of policy at a public hearing	**2.388**	0.096	**2.636**	0.111
Behavioral Intentions ← Writing a letter to the editor supporting policy	**2.316**	0.111	**2.650**	0.105
Behavioral Intentions ← Comment on an online policy discussion	**2.210**	0.115	**2.517**	0.113
Behavioral Intentions ← Talking to other gun owners to gain support	**2.609**	0.087	**2.740**	0.107
Behavioral Intentions ← Talking to non-gun owners gain support	**2.604**	0.095	**2.669**	0.114
Behavioral Intentions ← Talking to gun owners about gun safety	**2.252**	0.098	**1.863**	0.133
Behavioral Intentions ← Teach a group of youth about gun safety	**2.084**	0.109	**1.313**	0.158
Indicator Covariances				
Concealed carry in more places ↔ Allow teachers to carry in schools	**0.153**	0.038	**0.165**	0.032
Concealed carry in more places ↔ Restricting concealed campus carry	**0.102**	0.035	0.042	0.031
Talking to gun owners about gun safety ↔ Talking to family/friends about GV	**1.432**	0.271	**1.238**	0.389
Talking to gun owners about gun safety ↔ Talking to other gun owners to gain support	**0.764**	0.167	**0.792**	0.257
Talking to gun owners about gun safety ↔ Teach a group of youth about gun safety	**3.498**	0.361	**6.490**	0.516
Latent Variable Regression				
Behavioral Intentions ← Firearm Locations Attitudes	0.046	0.055	**0.295**	0.048

Note. $p < .05$ for bolded coefficients

Post-hoc Structural Models. The estimated model used to investigate the relationship between the third latent gun control variable and behavioral intentions, as well as the role of ambivalence, is depicted in Figure 3.4. Like my previously investigated model, the structural

Figure 3.4

Structural Model Used in Post-hoc Increased Lethality Factor Analyses



model containing all latent gun control attitude variables demonstrated acceptable absolute fit (χ^2 = 1,967.228, $p < .01$; *RMSEA* = .050; *SRMR* = .060), but marginal relative model fit (*CFI* = .931, *TLI* = .922). Estimated path coefficients for the model are presented in Table 3.15 and 3.16. All

items were significantly associated with their latent variables across the High Ambivalence and Low Ambivalence groups. The third latent gun control attitude variable was not significantly associated with behavioral intentions in either the High Ambivalence (β = -0.031, *SE* = 0.076, *p* = .679) or the Low Ambivalence (β = 0.134, *SE* = 0.075, *p* = .073) groups.

Additional post-hoc SEM regression analyses were performed to further investigate the possible impact of ambivalence on the relationship between each latent gun control policy subcategory and gun violence prevention behavioral intentions. Missing data for these models were handled through listwise deletion. SEM models for each of the gun policy attitude subcategories were estimated using a DLWS estimator suitable for ordinal data. The estimated model for the Unsafe Ownership category demonstrated acceptable absolute (χ^2 = 1,036.197, *p* < .01; *RMSEA* = .047; *SRMR* = .060) and relative fit (*CFI* = .960, *TLI* = .954). Similarly, the model for the Firearm Locations subcategory demonstrated acceptable absolute (χ^2 = 729.576, *p* < .01; *RMSEA* = .059; *SRMR* = .074) and relative fit (*CFI* = .987, *TLI* = .984). Again, the Increased Lethality category was investigated using a structural model containing all three gun control policy attitude factors and demonstrated acceptable absolute (χ^2 = 2,276.842, *p* < .01; *RMSEA* = .055; *SRMR* = .079) and relative fit (*CFI* = .978, *TLI* = .975).

Table 3.15

Estimated Path Coefficients for Post-hoc Increased Lethality-Intentions SEM Model

	High Ambivalence		Low Ambivalence	
Variable Path	Estimate	SE	Estimate	SE
Latent Variable Indicators				
Unsafe Ownership Attitudes ← Preventing purchase if mentally ill	**0.447**	0.033	**0.645**	0.058
Unsafe Ownership Attitudes ← Barring purchase if on no-fly and watch list	**0.510**	0.034	**0.986**	0.050
Unsafe Ownership Attitudes ← Prohibiting possession during DV restraining order	**0.541**	0.030	**0.855**	0.056
Unsafe Ownership Attitudes ← Universal background checks	**0.577**	0.025	**1.150**	0.046
Unsafe Ownership Attitudes ← Prohibiting possession if risk to self/others	**0.521**	0.029	**0.901**	0.053
Unsafe Ownership Attitudes ← Ten-year restriction for serious juvenile offenses	**0.435**	0.030	**0.711**	0.058
Unsafe Ownership Attitudes ← Require background check for concealed carry	**0.560**	0.030	**0.902**	0.057
Unsafe Ownership Attitudes ← Requiring safety course for purchase	**0.500**	0.031	**0.885**	0.054
Unsafe Ownership Attitudes ← Requiring a permit for concealed handgun carry	**0.625**	0.030	**1.082**	0.049
Firearm Locations Attitudes ← Restricting concealed carry in elementary schools	**0.878**	0.036	**1.349**	0.036
Firearm Locations Attitudes ← Concealed carry in more places	**0.601**	0.041	**1.084**	0.050
Firearm Locations Attitudes ← Allow teachers to carry in schools	**0.738**	0.039	**1.068**	0.047
Firearm Locations Attitudes ← Restricting concealed campus carry	**0.862**	0.035	**1.432**	0.031
Increased Lethality Attitudes ← Banning high-capacity magazines	**0.542**	0.047	**1.893**	0.012
Increased Lethality Attitudes ← Banning military-style semi-auto weapons	**0.662**	0.054	**1.931**	0.010
Behavioral Intentions ← Contacting public official to support policy	**2.508**	0.097	**2.833**	0.095
Behavioral Intentions ← Donating to a GV prevention organization	**1.812**	0.122	**2.202**	0.129
Behavioral Intentions ← Talking to family/friends about GV	**2.037**	0.092	**2.108**	0.112
Behavioral Intentions ← Attending a public health policy discussion	**2.468**	0.086	**2.714**	0.101
Behavioral Intentions ← Testifying in favor of policy at a public hearing	**2.383**	0.100	**2.615**	0.113
Behavioral Intentions ← Writing a letter to the editor supporting policy	**2.308**	0.110	**2.666**	0.109
Behavioral Intentions ← Comment on an online policy discussion	**2.180**	0.109	**2.553**	0.123
Behavioral Intentions ← Talking to other gun owners to gain support	**2.611**	0.090	**2.721**	0.109
Behavioral Intentions ← Talking to non-gun owners gain support	**2.579**	0.097	**2.723**	0.114
Behavioral Intentions ← Talking to gun owners about gun safety	**2.212**	0.100	**1.964**	0.134
Behavioral Intentions ← Teach a group of youth about gun safety	**2.022**	0.109	**1.474**	0.160
Talking to gun owners about gun safety ↔ Talking to family/friends about GV	**1.149**	0.279	**1.602**	0.382

Note. $p < .05$ for bolded values

Table 3.16

Estimated Path Coefficients for Post-hoc Increased Lethality-Intentions SEM Model, continued

	High Ambivalence		Low Ambivalence	
Variable Path	Estimate	SE	Estimate	SE
Talking to gun owners about gun safety ↔ Talking to family/friends about GV	**1.149**	0.279	**1.602**	0.382
Talking to gun owners about gun safety ↔ Talking to other gun owners to gain support	**0.642**	0.182	**0.886**	0.230
Talking to gun owners about gun safety ↔ Teach a group of youth about gun safety	**3.527**	0.376	**6.689**	0.514
Latent Variable Covariance				
Unsafe Ownership Attitudes ↔ Firearm Locations Attitudes	**0.271**	0.036	**0.707**	0.021
Unsafe Ownership Attitudes ↔ Increased Lethality Attitudes	**0.365**	0.047	**0.696**	0.023
Firearm Locations Attitudes ↔ Increased Lethality Attitudes	**0.569**	0.054	**0.819**	0.018
Latent Variable Regression				
Behavioral Intentions ← Unsafe Ownership Attitudes	0.087	0.059	0.074	0.097
Behavioral Intentions ← Firearm Locations Attitudes	0.123	0.065	0.079	0.092
Behavioral Intentions ← Increased Lethality Attitudes	-0.031	0.076	0.134	0.075

Note. $p < .05$ for bolded values

Using methods to compare complex nested models with large datasets (van Dijk et al., 2022), measure invariance was established for the Unsafe Ownership ($\Delta\chi^2 = 91.427$, $p > .05$), but not the Firearm Locations ($\Delta\chi^2 = 235.77$, $p < .05$) nor Increased Lethality ($\Delta\chi^2 = 295.71$, $p < .05$) subcategories. Estimated path coefficients for the constrained group model are presented in Table 3.17. For the Unsafe Ownership subcategory, a model with all constrained factor loadings differed from an identical model with the attitude-behavioral intention relationship constrained to be equal across groups ($\Delta\chi^2 = 64.815$, $p < .05$), suggesting that the relationship between attitudes toward Unsafe Ownership and gun violence prevention behavioral intentions differed between the High Ambivalence ($\beta = 0.033$, $SE = 0.010$, $p < .01$) and Low Ambivalence groups ($\beta = 0.149$, $SE = 0.011$, $p < .001$).

Table 3.17

Estimated Path Coefficients for Constrained Group Loadings Post-hoc Unsafe Ownership-Intentions SEM Model

	High Ambivalence		Low Ambivalence	
	Estimate	SE	Estimate	SE
Latent Variable Indicators				
Unsafe Ownership Attitudes ← Preventing purchase if mentally ill	**0.469**	0.013	**0.469**	0.013
Unsafe Ownership Attitudes ← Barring purchase if on no-fly and watch list	**0.473**	0.013	**0.473**	0.013
Unsafe Ownership Attitudes ← Prohibiting possession during DV restraining order	**0.519**	0.013	**0.519**	0.013
Unsafe Ownership Attitudes ← Universal background checks	**0.607**	0.013	**0.607**	0.013
Unsafe Ownership Attitudes ← Prohibiting possession if risk to self/others	**0.582**	0.013	**0.582**	0.013
Unsafe Ownership Attitudes ← Ten-year restriction for serious juvenile offenses	**0.454**	0.012	**0.454**	0.012
Unsafe Ownership Attitudes ← Require background check for concealed carry	**0.675**	0.014	**0.675**	0.014
Unsafe Ownership Attitudes ← Requiring safety course for purchase	**0.425**	0.012	**0.425**	0.012
Unsafe Ownership Attitudes ← Requiring a permit for concealed handgun carry	**0.578**	0.013	**0.578**	0.013
Behavioral Intentions ← Contacting public official to support policy	**2.388**	0.065	**2.388**	0.065
Behavioral Intentions ← Donating to a GV prevention organization	**1.701**	0.049	**1.701**	0.049
Behavioral Intentions ← Talking to family/friends about GV	**1.864**	0.064	**1.864**	0.064
Behavioral Intentions ← Attending a public health policy discussion	**2.355**	0.066	**2.355**	0.066
Behavioral Intentions ← Testifying in favor of policy at a public hearing	**2.246**	0.060	**2.246**	0.060
Behavioral Intentions ← Writing a letter to the editor supporting policy	**2.207**	0.058	**2.207**	0.058
Behavioral Intentions ← Comment on an online policy discussion	**2.111**	0.057	**2.111**	0.057
Behavioral Intentions ← Talking to other gun owners to gain support	**2.405**	0.067	**2.405**	0.067
Behavioral Intentions ← Talking to non-gun owners gain support	**2.411**	0.066	**2.411**	0.066
Behavioral Intentions ← Talking to gun owners about gun safety	**1.836**	0.073	**1.836**	0.073
Behavioral Intentions ← Teach a group of youth about gun safety	**1.625**	0.065	**1.625**	0.065
Indicator Covariances				
Talking to gun owners about gun safety ↔ Talking to family/friends about GV	**2.412**	0.792	**2.105**	0.957
Talking to gun owners about gun safety ↔ Talking to other gun owners to gain support	0.968	0.797	1.477	0.992
Talking to gun owners about gun safety ↔ Teach a group of youth about gun safety	**6.112**	1.060	**4.840**	1.215
Latent Variable Regression				
Behavioral Intentions ← Unsafe Ownership Attitudes	**0.033**	0.010	**0.149**	0.011

Note. $p < .05$ for bolded values

For models where measurement invariance could not be established, group differences in the significance and direction of the relationship between the policy subcategory attitude and behavioral intention were investigated. For the Firearm Locations subcategory, attitudes toward the subcategory were associated with behavioral intentions in both the Low Ambivalence (β = 0.296, SE = 0.012, $p < .01$) and High Ambivalence (β = 0.029, SE = 0.014, $p < .05$) groups. Estimated path coefficients for the model are presented in Table 3.18. Interestingly, the attitude-intention relationship for the Increased Lethality subcategory differed between the High Ambivalence (β = -0.075, SE = 0.031, $p < .05$) and Low Ambivalence (β = -0.004, SE = 0.081, $p > .05$) groups. This may be a spurious finding, however, as no relationship was found between the attitudes toward Increased Lethality category and behavioral intentions (β = 0.002, SE = 0.026, $p > .05$). Estimated path coefficients for the model are presented in Table 3.19.

In summary, results from multiple group SEM analyses failed to provide evidence of ambivalence's moderating effect on the relationship between policy subcategory attitudes and gun violence prevention intention. Post-hoc analyses indicated that this may be attributable to a priori methodological choices, as ambivalence moderated the relationship between the attitudes toward the Unsafe Ownership subcategory and behavioral intentions.

Table 3.18

Estimated Path Coefficients for Post-hoc Firearm Locations-Intentions SEM Model

	High Ambivalence		Low Ambivalence	
	Estimate	SE	Estimate	SE
Latent Variable Indicators				
Firearm Locations Attitudes ← Restricting concealed carry in elementary schools	**1.153**	0.366	**0.977**	0.011
Firearm Locations Attitudes ← Concealed carry in more places	-0.026	0.025	**0.911**	0.016
Firearm Locations Attitudes ← Allow teachers to carry in schools	**0.128**	0.042	**0.923**	0.011
Firearm Locations Attitudes ← Restricting concealed campus carry	**0.324**	0.103	**0.950**	0.011
Behavioral Intentions ← Contacting public official to support policy	**2.508**	0.083	**3.112**	0.123
Behavioral Intentions ← Donating to a GV prevention organization	**1.918**	0.069	**2.286**	0.093
Behavioral Intentions ← Talking to family/friends about GV	**2.036**	0.087	**2.136**	0.112
Behavioral Intentions ← Attending a public health policy discussion	**2.575**	0.086	**2.601**	0.116
Behavioral Intentions ← Testifying in favor of policy at a public hearing	**2.377**	0.076	**2.666**	0.114
Behavioral Intentions ← Writing a letter to the editor supporting policy	**2.307**	0.074	**2.693**	0.109
Behavioral Intentions ← Comment on an online policy discussion	**2.201**	0.073	**2.561**	0.106
Behavioral Intentions ← Talking to other gun owners to gain support	**2.598**	0.087	**2.586**	0.113
Behavioral Intentions ← Talking to non-gun owners gain support	**2.622**	0.086	**2.591**	0.111
Behavioral Intentions ← Talking to gun owners about gun safety	**2.178**	0.102	**1.262**	0.106
Behavioral Intentions ← Teach a group of youth about gun safety	**2.078**	0.092	**0.879**	0.089
Indicator Covariances				
Concealed carry in more places ↔ Allow teachers to carry in schools	**0.219**	0.029	**0.053**	0.024
Concealed carry in more places ↔ Restricting concealed campus carry	**0.141**	0.025	0.017	0.026
Talking to gun owners about gun safety ↔ Talking to family/friends about GV	**1.933**	0.791	**3.567**	1.029
Talking to gun owners about gun safety ↔ Talking to other gun owners to gain support	1.099	0.797	**3.182**	1.091
Talking to gun owners about gun safety ↔ Teach a group of youth about gun safety	**3.947**	0.978	**8.315**	1.320
Latent Variable Regression				
Behavioral Intentions ← Firearm Locations Attitudes	**0.029**	0.014	**0.296**	0.012

Note. $p < .05$ for bolded values

Table 3.19

Estimated Path Coefficients for Post-hoc Omnibus Attitudes-Intentions SEM Model

	High Ambivalence		Low Ambivalence	
	Estimate	SE	Estimate	SE
Latent Variable Indicators				
Unsafe Ownership Attitudes ← Preventing purchase if mentally ill	**0.665**	0.013	**0.763**	0.012
Unsafe Ownership Attitudes ← Barring purchase if on no-fly and watch list	**0.611**	0.014	**0.791**	0.011
Unsafe Ownership Attitudes ← Prohibiting possession during DV restraining order	**0.721**	0.013	**0.811**	0.011
Unsafe Ownership Attitudes ← Universal background checks	**0.749**	0.012	**0.894**	0.010
Unsafe Ownership Attitudes ← Prohibiting possession if risk to self/others	**0.760**	0.013	**0.864**	0.011
Unsafe Ownership Attitudes ← Ten-year restriction for serious juvenile offenses	**0.586**	0.013	**0.717**	0.012
Unsafe Ownership Attitudes ← Require background check for concealed carry	**0.828**	0.013	**0.890**	0.010
Unsafe Ownership Attitudes ← Requiring safety course for purchase	**0.595**	0.014	**0.723**	0.012
Unsafe Ownership Attitudes ← Requiring a permit for concealed handgun carry	**0.752**	0.013	**0.883**	0.010
Firearm Locations Attitudes ← Restricting concealed carry in elementary schools	**0.833**	0.020	**0.926**	0.010
Firearm Locations Attitudes ← Concealed carry in more places	**0.629**	0.028	**0.809**	0.015
Firearm Locations Attitudes ← Allow teachers to carry in schools	**0.684**	0.019	**0.785**	0.012
Firearm Locations Attitudes ← Restricting concealed campus carry	**0.834**	0.021	**0.950**	0.011
Increased Lethality Attitudes ← Banning high-capacity magazines	**0.508**	0.028	**1.905**	0.250
Increased Lethality Attitudes ← Banning military-style semi-auto weapons	**0.706**	0.040	**1.920**	0.252
Behavioral Intentions ← Contacting public official to support policy	**2.555**	0.084	**3.285**	0.113
Behavioral Intentions ← Donating to a GV prevention organization	**1.811**	0.065	**2.747**	0.094
Behavioral Intentions ← Talking to family/friends about GV	**2.129**	0.085	**2.226**	0.105
Behavioral Intentions ← Attending a public health policy discussion	**2.495**	0.083	**2.420**	0.105
Behavioral Intentions ← Testifying in favor of policy at a public hearing	**2.360**	0.077	**2.591**	0.101
Behavioral Intentions ← Writing a letter to the editor supporting policy	**2.307**	0.075	**2.702**	0.099
Behavioral Intentions ← Comment on an online policy discussion	**2.197**	0.071	**2.451**	0.097
Behavioral Intentions ← Talking to other gun owners to gain support	**2.551**	0.086	**2.427**	0.100
Behavioral Intentions ← Talking to non-gun owners gain support	**2.598**	0.085	**2.365**	0.100
Behavioral Intentions ← Talking to gun owners about gun safety	**2.000**	0.098	**0.874**	0.100
Behavioral Intentions ← Teach a group of youth about gun safety	**1.884**	0.089	**0.566**	0.088
Indicator Covariance				
Concealed carry in more places ↔ Allow teachers to carry in schools	**0.163**	0.032	**0.167**	0.023
Concealed carry in more places ↔ Restricting concealed campus carry	0.057	0.037	0.017	0.025
Talking to gun owners about gun safety ↔ Talking to family/friends about GV	**1.967**	0.771	**4.621**	1.086
Talking to gun owners about gun safety ↔ Talking to other gun owners to gain support	1.310	0.794	**4.865**	1.102
Talking to gun owners about gun safety ↔ Teach a group of youth about gun safety	**4.408**	0.947	**9.751**	1.453
Latent Variable Covariance				
Unsafe Ownership Attitudes ↔ Firearm Locations Attitudes	**0.235**	0.012	**0.767**	0.009
Unsafe Ownership Attitudes ↔ Increased Lethality Attitudes	**0.356**	0.026	**0.695**	0.097
Firearm Locations Attitudes ↔ Increased Lethality Attitudes	**0.586**	0.037	**0.784**	0.120
Latent Variable Regression				
Behavioral Intentions ← Unsafe Ownership Attitudes	**0.124**	0.012	**0.109**	0.033
Behavioral Intentions ← Firearm Locations Attitudes	**0.130**	0.022	**0.201**	0.063
Behavioral Intentions ← Increased Lethality Attitudes	**-0.075**	0.031	-0.004	0.081

Note. $p < .05$ for bolded values

CHAPTER 4

DISCUSSION

Gun owners may comprise a group at elevated risk of gun violence and limited receptivity to gun violence prevention efforts. Gun-owning households are at increased risk of being exposed to gun violence (Hemenway, 2011), yet gun owners are more likely to oppose gun violence prevention strategies, such as those that directly impact gun ownership (Barry et al., 2018) or fund community-based gun violence interventions (Ward et al., 2022). Despite these group-level trends, gun owners diverge in their reasons for ownership, their overall support for firearms restrictions, and their support for specific types of gun control policies (Burton et al., 2021). This may suggest that gun owners' diverse responses to gun control policy proposals may be indicative of multiple underlying attitudes toward gun control.

The goal of this study was to clarify the relationship between gun owners' attitudes toward gun control policy and their willingness to engage in other types of gun violence prevention efforts. I used data from a large national sample U.S. gun owners to investigate these relationships. In the first phase of my study, I found that gun owners do not possess a single, overarching attitude towards gun control policy. Instead, my findings suggested that gun owners identify gun control policies as decreasing the likelihood of unsafe gun ownership (factor 1: Unsafe Ownership), impacting the ability to lawfully carry firearms (factor 2: Firearm Locations), and controlling the usage of firearms and accessories associated with increased lethality (factor 3: Increased Lethality). In the second phase of my study, I found mixed evidence to support my hypothesis that pro-gun control attitudes, anti-gun control attitudes, and subjective ambivalence were predictive of gun owners' willingness to advocate for gun violence prevention. In the third phase of my study, I was unable to identify clear evidence that ambivalence moderates the relationship between gun control policy attitudes and gun violence prevention

behavioral intentions. In this chapter, I discuss the findings associated with each of my hypotheses, their relevance to extant literature, and the implications from my study.

Research Question 1

As suggested by prior literature examining support for gun control policies, the varied level of support that U.S. gun owners' have for gun control policy is likely a product of their differing attitudes toward subtypes of policies. The Unsafe Ownership subcategory captures policies that attempt to mitigate the likelihood of unsafe gun ownership. The majority of policies within this category are intended to deny dangerous individuals access to firearms, but not all policies identified explicitly identify individuals with a history of dangerous behavior. Despite a paucity of evidence in support of a direct relationship between severe mental illness and violence (Steadman et al., 2015; Swanson, Sampson, et al., 2015), participants' support for policies preventing individuals with severe mental illness from purchasing firearms mirrored their support for policies that identify individuals with a risk of violence. The association between mental illness and violence within the U.S. collective consciousness has been attributed to hidden societal beliefs on race, class, and ability (Metzl & MacLeish, 2015). The link between mental illness and danger is further fueled by media coverage of gun violence (McGinty, Webster, Jarlenski, et al., 2014). Other policies associated with this subtype entail increased scrutiny for gun ownership and possession by requiring prospective gun owners to demonstrate historical (e.g., background checks) and present (e.g., passing a safety course) ability to use firearms safely.

If the Unsafe Ownership gun control policy subtype captures policies that impact who is legally allowed to own a firearm, the Firearm Locations category can be framed as policies that impact *where* individuals are allowed to legally carry firearms. Participants responded similarly

to gun control policies that modified where concealed carry was permitted and policies that allowed for increased presence of guns in educational settings. Following several school-based high-fatality mass shooting events, the availability of firearms in schools became a focal point for media coverage gun violence in the United States (Arrigo & Acheson, 2016). Gun ownership status has been previously cited as a demographic variable associated with elevated support for expansion of legal gun possession (Barry et al., 2019; Wolfson et al., 2017), including campus carry policies (Hassett et al., 2020). Irrespective of ownership status, individuals with traits associated with gun ownership (e.g., exposure to guns and positive attitudes toward guns) are more likely to support policies that allow concealed carry on college campuses (McMahon-Howard et al., 2020; Schildkraut et al., 2018).

The final gun control policy subtype was represented by a pair of policies that impact the types of firearms that can be legally owned but does not encompass all the hypothetical policies that target specific of firearms (e.g., policies that impact the concealed possession of handguns). As is the case for the majority of gun control policies, gun ownership and previous experience with firearms is associated with support for more permissive policies regarding handgun ownership (Barry et al., 2019; O'Brien et al., 2013). This pattern of support is more nuanced among military veterans with previous combat experience, as this population is more likely to both support policies that relax concealed carry regulations and policies that restrict the availability of military-style and high-capacity weapons (Ellison et al., 2022). This suggests that assault-style weapons bans and magazine size restrictions may jointly represent a subclass of gun control policy that carries both physical and philosophical implications for gun owners. These policies are less supported by classes of gun owners who are more likely to own multiple firearms, carry loaded firearms, and fail to secure their firearms (Schleimer et al., 2020). This

could suggest that association between high-capacity and assault-style weapons may be influenced by patterns of gun ownership, such that increased boldness with weapons decreases one's propensity to see this class of weapons as dangerous. If so, this perception is reflective of biases associated with gun ownership. Exemplifying this, gun owners are more apt to emphasize the perpetrator's role in mass shootings while simultaneously deemphasizing the role of firearms as a precipitator to these tragedies (Stroebe et al., 2022).

Research Question 2

Although latent profile analyses intended to identify participants' readiness to change their gun violence risk failed to identify classes explicitly associated with the TTM's stages of change (Prochaska & DiClemente, 1982), the results yielded profiles that bear resemblance to movement across the stages within the Increased Lethality and Unsafe Ownership subcategories of gun control policy. Within these subcategories, the relationship between ambivalence, gun control attitudes, and gun violence prevention behavioral intentions followed patterns observed in previous investigations of ambivalence across the stages of change (Armitage et al., 2003; Armitage & Arden, 2007). My interpretation of the estimated classes was guided by the TTM's assertion that progression though the stages of change is associated with a greater ratio of benefits to costs of change, as well as prior findings suggesting that attitudes toward behavior change increase linearly across the model's stages (Jordan et al., 2002). I found that ambivalence was lowest for the classes estimated to have the highest and lowest attitudes in favor of the gun control policy subcategory (i.e. at the first and last stages of the model). This quadratic relationship between ambivalence and readiness to change has been previously observed using other measures of potential and felt ambivalence (Armitage et al., 2003; Armitage & Arden, 2007).

Classes estimated for each subcategory of gun control policy failed to demonstrate an increase in gun violence prevention behavioral intentions associated with progression through the stages of change. One potential explanation for this finding is that although changes in behavioral intentions may be associated with changes in behavior (Webb & Sheeran, 2006), the relationship between intentions and readiness to change may be less straightforward. Namely, bolstering individuals' intention to implement behavior change may increase their likelihood to progress through the stages of change, but it may not prevent them from becoming less ready to change (Armitage, 2006). I found that behavioral intentions uniformly increased from contemplation to action (i.e. the stages where both attitude scores increased and ambivalence decreased), which I interpreted to be a proxy measure for readiness to engage in behaviors to reduce gun violence risk. The extent to which *readiness, willingness,* and *intention* are equivalent constructs within the TTM remains unclear. The model's concept of readiness has been equated to willingness and openness (DiClemente et al., 2004), but the concepts have often been applied interchangeably in applied investigations of behavior change models (e.g., Armitage & Arden, 2007; Forward, 2014; Friman et al., 2017) without discussion of their conceptual overlap and differences. This lack of clarity might explain why the Contemplation class was estimated to have both higher willingness to engage in gun violence prevention and higher engagement in precontemplation behaviors than the Preparation class for the dangerous ownership gun control subcategory.

In analysis of the Unsafe Ownership policies, when compared to the Precontemplation group, elevated precontemplative behaviors were associated with greater chance of membership in *every other class*. Post-hoc analysis suggested that this finding could be attributable to overfit regression models; nonetheless, the measure used for precontemplation in this study warrants

scrutiny. The TTM of behavior change posits that movement through the stages of changes is associated with changes in attitude toward behavior change. While literature suggests signs of precontemplation include increased engagement in behavior that is targeted for change (Andrews et al., 2018), behavior is neither a necessary nor sufficient marker for being in the precontemplation stage as it is not a reliable indicator of attitudes about behavior change. Particularly within the early stages of the model (i.e., from precontemplation to preparation), measures of pre-change behavior can fail to detect movement between the stages (Velicer et al., 2000).

Within the Firearm Locations subcategory (i.e. factor 2) of gun control policy, analyses estimated the presence of two classes that subverted my expectations for classes representative of the TTM's stages. The first class was labeled Precontemplative Attitudes on account of it being associated with the lowest mean attitudes and ambivalence toward the firearm location subcategory, but neither the lowest gun violence prevention behavioral intentions nor engagement in precontemplation-related behaviors. Furthermore, increased engagement in precontemplative behaviors did not impact the relative likelihood of membership in this class. The second anomalous class, labeled Precontemplation Behaviors, displayed greater intention to engage in gun violence prevention than the Ambivalence class despite having less positive and more negative gun control attitudes. Similarly, the Preparation class demonstrated a lower behavioral intention score than the Contemplation class for the Unsafe Ownership (i.e., factor 1) gun control subcategory. This finding further highlights the limited utility of current behaviors as an indicator for readiness to change behavior.

The unexpected findings among the Precontemplation Attitudes and Precontemplation Behaviors classes may be an expression of the sociocultural differences between the groups,

namely the extent to which they identify with gun ownership as a sociocultural identity. A greater proportion of individuals in the Precontemplation Attitudes class endorsed guns being important to their identity and essential to their freedom. Compared to the other precontemplation class, class members were more likely to feel disrespected by gun violence prevention advocates and see them as a threat to their culture. Indeed, a gun ownership social identity is associated with stronger gun policy attitudes, a belief of treat to gun ownership, engagement in gun-related activities, and contact with the NRA (Lacombe et al., 2019). Although gun ownership is not a prerequisite for a gun ownership identity (Lacombe et al., 2019), gun ownership is more common within gun cultures where guns are integrated into the social fabric of a community (Kalesan et al., 2016). Although these communities are more likely to have political ideologies associated with decreased support for gun control policy, my findings suggest that this should not be equated with decreased willingness to engage in gun violence prevention. Post-hoc analyses suggested that this group's greater than expected behavioral intentions were likely attributable to their increased willingness to talk to other gun owners and children about gun safety. When these items were removed from the behavioral intention measure, this group's willingness became comparable to the other precontemplation group.

Research Question 3

The investigation of ambivalence's impact on the relationship between attitudes and behavioral intentions failed to provide evidence in support of my hypothesis because of poorly fit structural models. Follow-up diagnostics suggested that this poor model fit was partially attributable to my methodological decisions to handle missing data. The decision to use a robust maximum likelihood procedure to estimate structural models required that ordinal survey data be treated as continuous. The application of methodology requiring continuous data has been

defended under conditions of categorical data with a sufficient number of categories (Rhemtulla et al., 2012), but the blanket utility of doing so has been critiqued (Robitzsch, 2020). Inappropriate use of such strategies is believed to be associated with inaccurate estimations of model fit (Şimşek & Noyan, 2012). This argument gained further credence after my measurement and structural models demonstrated acceptable values on fit indices when estimated using procedures appropriate for ordinal data. Because these additional models were not specified *a priori,* I did not consider them to provide evidence in support my hypotheses. Nonetheless, they provided additional, suggestive information about the potential relationship between these constructs of interest.

To probe differences between groups, I assessed the differences in the significance and direction of the relationship between each gun control attitude factor and gun violence prevention behavioral intentions. I was unable to investigate differences in the magnitude of the relationship for each gun control policy attitude subcategory because metric invariance could not be established (Sauerwein & Theis, 2021) for the Firearm Location and Increased Lethality subcategories. Despite this shortcoming, my results consistently highlighted a positive significant relationship between attitudes and related behavioral intentions, as hypothesized by the theories of reasoned action and planned behavior. Within the Dangerous Ownership subcategory, the relationship between attitude and behavioral intention was stronger for the Low Ambivalence group, replicating findings from prior investigations of the moderating effect of potential ambivalence on related behavioral intentions (Armitage & Conner, 2000; Costarelli & Colloca, 2007). An alternative explanation for this moderating effect is that my study's atypical measures of ambivalence may resemble measures of belief homogeneity (i.e., the extent to which beliefs

are consistent), which has also been found to moderate the relationship between attitudes and behavioral intentions (Armitage, 2003).

The investigation of attitudes toward the Increased Lethality policy category produced an unexpected finding: the High Ambivalence group showed a significant attitude-intention relationship whereas the Low Ambivalence group lacked such a relationship. This finding could be partially attributed to features associated with my chosen ambivalence scoring method. Using Thompson and colleagues' (1995) ambivalence scoring method, the range of possible ambivalence scores is positively associated with number of items in the scale. With shorter scales, the use of mean splitting would result in groups that are relatively more similar in ambivalence. Separately, sensitivity analyses suggested that this finding is a result of controlling for the relationship between attitudes toward the other gun control policy categories and behavioral intentions, indicating that there may not be sufficient variance remaining to identify a meaningful relationship between Increased Lethality attitudes and behavioral intentions.

Strengths and Limitations

This project serves as an understudied intersection between descriptive research into the attitudes and behavior of United States gun owners and implications for the effectiveness of gun violence prevention initiatives.

As a secondary analysis of survey data, this project was limited in the extent to which it could investigate the relevance of behavioral theories to gun violence prevention. The most significant limitation of this study is the uncertain construct validity of the measures I believed to represent constructs within the TRA and the TTM of behavior change. Investigations into the TRA typically contain measures of attitudes and behavioral intentions toward a narrowly defined behavior (e.g., Chang, 1998) as the attitude-intention relationship is stronger under conditions of

specific attitude objects (Wicker & Pomazal, 1971). In contrast, I interpreted the NLUGS's gun control policy items and gun violence prevention willingness items to be representative of gun violence prevention as a general behavior, possibly at the cost of statistical power (Sink & Mvududu, 2010). In a similar vein, I estimated the TTM's stages using modified attitude measures designed to mimic decisional balance scales (Velicer et al., 1985) weighing the positive and negative aspects of gun violence prevention. Additionally, I relied on proxy measures for precontemplation that did not allow me to distinguish between the model's early stages (i.e., precontemplation to preparation) which are primarily distinguished by an individual's cognitive and affective relationship to new behavior, and not their level of engagement in current behavior (Petrocelli, 2002).

My investigation into the TRA's relevance to gun violence prevention did not explore the influence of subjective norms on the attitude-behavioral intention relationship, resulting in a limited exploration of gun violence prevention as a behavior that is influenced by sociocultural dynamics tied to gun ownership. Findings from prior research indicate that gun owners' decision to support gun policy is influenced by their perception of the level of support other gun owners have for such policy (Grene et al., 2023). Particularly in an era of hyperconnectivity and sociopolitical polarization, social identity, self-categorization, and conformity to group norms continue to exert their influence on our attitudes and behavior (Hogg & Smith, 2007). There is clear benefit to understanding the extent to which social pressures may operate as behavioral norms that either increase gun owners' propensity to act on their opposition to gun violence prevention or (more tragically) decrease a gun owner's willingness to act on attitudes in support of gun violence prevention.

Since its conception, the TRA's constructs have been integrated into the more comprehensive theory of planned behavior, which specifies perceived behavioral control as a key influence on behavioral intentions. Although my study investigated gun control policy support as an attitude representative of behavioral intentions to prevent gun violence, this view is not universally held. The NLUGS data reiterated that gun ownership is primarily motivated by a desire for self-defense, meaning that gun ownership may be viewed by gun owners as a method to reduce their risk of exposure to gun violence. This alternative framing is worth considering because gun ownership has been hypothesized to be a means to exercise control and safety (Buttrick, 2020). Political identities associated with an increased likelihood of gun ownership were also associated with increased pessimism about safety (Warner & Thrash, 2020), and gun owners were more likely to believe that mass shootings would continue to occur without government intervention (Joslyn & Haider-Markel, 2017). Such findings lend some credence to the possibility that gun ownership is seen as a preferred method to prevent gun violence because it may be associated with increased perceived behavioral control relative to gun violence prevention efforts at higher socioecological levels. Had my study explored the broader theory of planned behavior, the influence of sociopolitical pessimism on gun control support could be further explored.

This study's usage of a representative sample of U.S. gun owners offers a unique insight to into a population at elevated risk of firearm injury but continues to neglect the understudied subsets within this group. Black American gun owners have been found to diverge from the larger gun owning population in their support for gun control policies (Crifasi et al., 2021) despite belonging to a population at elevated risk of firearm injury (Schnippel et al., 2021). This is particularly troubling when one considers the relationship between gun violence exposure and

suicide risk among Black Americans (Semenza et al., 2024) and the lethality of firearms as a method to die by suicide (Cai et al., 2022). My study consistently found that Black Americans were overrepresented in groups associated with greater willingness to participate in gun violence prevention. A greater understanding of this group's engagement with firearms and violence prevention could provide additional insight into the sociocultural dynamics that broadly influence the attitudes and policy decisions of gun owners.

Future Directions and Conclusions

The American Psychological Association has called on its members to contribute to gun violence prevention in our research, practice, and education efforts (American Psychological Association, 2014). As my study has provided some evidence to support the hypothesis that ambivalent attitudes toward gun violence prevention may decrease the strength of the attitude-intention relationship, future research should first aim to validate this finding with theory-appropriate measures. Once the generalization of this finding is supported, future research can directly investigate the relevance of ambivalence as a marker for sensitivity to gun violence prevention messaging. Although behavioral attitudes have been identified as an influencer of future behaviors, this relationship is likely attenuated by social norms and perceived behavioral control. Researchers should continue to investigate whether ambivalence acts as an indicator for amenability toward behavior change in real-world contexts. Motivational interviewing, a practice that leverages ambivalence to increase willingness to change behavior, has been widely applied to interventions to increase health behaviors (Martins & McNeil, 2009). Additional guidance for the usage of the approach may increase providers' willingness and self-efficacy in these potentially contentious interactions. Physicians have come to recognize the effectiveness of leveraging their relationship with their patients to promote healthy behaviors and have called to

do so to reduce gun violence injury risk (Hathi & Sacks, 2019). Mental health researchers can assist in these efforts by increasing our understanding of these interventions' working ingredients and the circumstances in which they are more likely to be effective.

Although my study was unable to explore the relevance of the larger TRA and TTM, my findings reflect those of previous investigations of ambivalence's role in the models (Conner et al., 2003). Gun ownership has been framed simultaneously as a behavior and the social identity closely tied to it (Lacombe et al., 2019), so it is suited for investigation through the lens of the theory of planned behavior and other behavioral frameworks that integrate social identity theories. Recognizing the subjective importance of firearm availability to gun owners, community health researchers have long attempted to increase the frequency of safe practices within this population (e.g., Coyne-Beasley et al., 2001). Unanticipated findings from my study indicate that such harm reduction approaches to firearm injury risk may not be met with the same tepid reaction that gun control policies receive from gun owners. Considering this, healthcare providers should be conscientious of the violence prevention behaviors that some gun owners currently engage in. In some instances, the staunchest opponents of gun control policy were more willing to practice microsystemic gun injury risk prevention by encouraging safe firearm practices among other gun owners. Future research could leverage in-group helping behavior tendencies (Levine et al., 2005) to identify gun violence prevention interventions of increased effectiveness due to abiding by the group norms of gun owners. Such interventions could make usage of peer support and communitarian approaches to resilience, wherein gun owners can receive education from an individual with a shared identity and cultivate safety practices that are aligned with their pattern of gun usage. My study found that the groups that were least likely to support gun control policies and associated with the lowest behavioral intentions were also the

most likely to contain individuals living with children below the age of 18. As children who sustain self-inflicted and unintentional firearm injuries most frequently do so with a firearm owned by a household member (Grossman et al., 1999), firearm injury prevention efforts may benefit from designing education about gun lock policy that can be disseminated by gun owners that targets youth and gun owners who live in households with youths. Such educational efforts should highlight the risks of having firearms accessible to children and use protection-oriented language that resonates with the intentions of defensive gun owners. In light of the biases associated with gun ownership (e.g., Stroebe et al., 2022), such educational approaches can be bolstered by attending to values associated with a gun owner social identity.

In summary, my study aimed to investigate the relationship between gun owners' gun support policy attitudes and their willingness to engage in gun violence prevention efforts through the lens of the TTM's stages of change and the TRA's hypothesized attitude-intention relationship. I hypothesized that ambivalent attitudes toward gun control policy would be emblematic of ambivalent attitudes toward gun violence prevention behaviors, weakening the link between one's attitudes regarding gun violence prevention and one's willingness to engage in prevention. My study found that gun owners did not possess a single attitude to gun control policy, but instead identified gun control policies that targeted dangerous ownership, firearm locations, and weapons associated with increased lethality. I found that attitudes toward policy, ambivalence toward policy, and behavioral intentions jointly predicted classes associated with the TTM's stages of change for some (but not all) policy classes. Finally, I was unable to reliably detect ambivalence's hypothesized moderating effect on the attitude-intention relationship proposed by the TRA. Nonetheless, my results indicated that this was likely attributable to ill-

constructed measures of the constructs, as one model demonstrated a moderation effect under conditions of missing data.

Overall, my findings suggest that mental health experts can contribute to gun violence risk reduction through the continued investigation of gun owners and the nuanced attitudes and worldviews that influence their likelihood to participate in gun violence prevention efforts. Mental health researchers have placed particular focus on countering the spurious belief that severe mental illness contributes to gun violence risk to fight against the mounting stigma against vulnerable populations (McGinty, Webster, & Barry, 2014; Metzl et al., 2021; Swanson, McGinty, et al., 2015). While this is undoubtedly an ethical use of our expertise, we risk taking half-steps toward equity by failing to make explicit the disproportionate experiences of severe mental illness associated with membership to marginalized populations (Tegnerowicz, 2018), exposure to violence (Swanson et al., 2002), and maternal prenatal health challenges (Schmitt et al., 2014). The present study aimed to understand the attitudes and behavior of U.S. gun owners, a population that shares a common risk factor for gun violence but not a population at common risk of experiencing gun violence. Future research into the attitudes and behaviors of gun owners should further contextualize *who* chooses to own firearms, *when* they choose to do so, and *why* firearm acquisition was a subjectively reasonable response to their circumstances. As I noted previously, if gun ownership is a subjectively rational behavior (i.e., explainable with available behavioral frameworks), motivating behavior change may require increasing an owner's openness to a subjectively rational alternative.

APPENDIX A

NLUGS SURVEY ITEMS

NLUGS Questions Regarding Gun Control Policy Attitudes

Please indicate the level of support or opposition to the following policies [Response Options: 1 = Strongly Oppose, 2 = Oppose, 3 = Neutral, 4 = Support, 5 = Strongly Support].

- Preventing the mentally ill from purchasing guns
- Barring gun purchases by people on no-fly or watch lists
- Prohibiting a person subject to a temporary domestic violence restraining order from having a gun for the duration of the order
- Prohibiting a person under the age of 21 from having a gun
- Prohibiting a person convicted of drunk and disorderly conduct from having a gun for ten years
- *Shortening waiting periods for buying guns legally
- Background checks for private sales and at gun shows (universal background checks)
- Prohibiting gun possession by people deemed to be a risk to themselves or others
- Restricting the carrying of concealed guns in elementary schools
- Giving law enforcement officers discretion in whether or not to approve a concealed carry permit application
- Requiring a permit to purchase a firearm
- Creating a federal database to track gun sales
- Banning high-capacity magazines for firearms (that is magazines with 10 or more rounds)

- Prohibiting a person convicted of a series of serious crimes as a juvenile from having a gun for ten years
- Requiring by law that a person lock up the guns in their home when not in use
- Allowing cities to sue licensed gun dealers when there is strong evidence that the gun dealer's sales practices allowed many criminals to obtain guns.
- *Allowing concealed carry in more places
- *Allowing teachers and officials to carry guns in K-12 schools
- Requiring background checks to obtain a concealed carry permit
- Restricting the carrying of concealed guns in colleges and universities
- Requiring a firearm safety course before the purchase of a firearm
- Requiring a permit to carry a concealed handgun
- Banning military-style semi-automatic assault weapons

**Items to be reverse scored*

NLUGS Questions Regarding Gun Violence Prevention Activities

Please rate the following questions to indicate your level of agreement [Response Options range from 0 – 10, with 0 being "No agreement" and 10 being "Total agreement"].

- Would you contact a public official to express your support for a legislation designed to reduce gun violence?
- Would you consider making a donation to an organization whose goal is to reduce gun violence?
- Would you talk to your family members or friends about gun violence prevention?
- Would you be willing to attend a meeting of public health advocates discussing policy proposals to reduce gun violence?
- Would you be willing to testify at a public hearing in favor of legislation to reduce gun violence?
- Would you be willing to write a letter to the editor supporting a policy to reduce gun violence?
- Would you be willing to write a comment on an internet discussion that supports a policy to reduce gun violence?
- Would you be willing to talk to other gun owners to try to gain their support for a policy to reduce gun violence?
- Would you be willing to talk to non-gun owners to try to gain their support for a policy to reduce gun violence?
- Would you be willing to talk to other gun owners about gun safety?
- Would you be willing to teach a group of youth about gun safety?

APPENDIX B

BIVARIATE CORRELATION TABLES

Table B1

Bivariate Correlations for Research Question 1 Variables

Variable	*n*	*M*	*SD*	min	max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. Preventing purchase if mentally ill	2,074	4.37	0.86	1	5	-																					
2. Barring purchase if on no-fly and watch list	2,068	3.95	1.10	1	5	.45	-																				
3. Prohibiting possession during DV restraining order	2,060	4.12	0.98	1	5	.47	.54	-																			
4. Prohibiting ownership under the age of 21	2,068	3.07	1.32	1	5	.33	.41	.40	-																		
5. Ten-year restriction for drunk and disorderly conviction	2,055	3.09	1.21	1	5	.34	.40	.44	.47	-																	
6. Shorten wait period for legal purchases	2,068	2.76	1.18	1	5	-.27	-.30	-.34	-.32	-.30	-																
7. Universal background checks	2,068	3.98	1.13	1	5	.44	.52	.49	.49	.42	-.45	-															
8. Prohibiting possession if risk to self/others	2,063	4.18	0.95	1	5	.58	.56	.56	.40	.41	-.33	.56	-														
9. Restricting concealed carry in elementary schools	2,066	3.19	1.32	1	5	.30	.30	.34	.37	.31	-.37	.41	.36	-													
10. Give LEOs discretion to approve concealed carry	2,062	2.90	1.21	1	5	.24	.34	.28	.25	.33	-.22	.36	.28	.25	-												
11. Requiring a permit to purchase	2,067	3.36	1.41	1	5	.33	.42	.42	.50	.46	-.41	.60	.45	.39	.37	-											
12. Creating a federal database to track purchases	2,063	3.28	1.41	1	5	.35	.44	.42	.50	.44	-.42	.62	.48	.44	.38	.64	-										
13. Banning high-capacity magazines	2,068	2.94	1.45	1	5	.29	.37	.36	.41	.40	-.43	.50	.42	.53	.36	.51	.57	-									
14. Ten-year restriction for serious juvenile offenses	2,066	4.07	0.94	1	5	.43	.44	.52	.33	.47	-.26	.41	.47	.24	.30	.35	.33	.28	-								
15. Requiring guns to be locked when unused	2,057	2.95	1.38	1	5	.27	.34	.36	.42	.39	-.31	.45	.36	.42	.34	.52	.52	.50	.27	-							
16. Allowing negligent gun dealers to be sued	2,059	3.61	1.27	1	5	.35	.41	.42	.38	.36	-.37	.51	.48	.36	.29	.47	.49	.44	.35	.39	-						
17. Concealed carry in more places	2,068	3.45	1.20	1	5	-.17	-.21	-.25	-.31	-.27	.48	-.35	-.26	-.58	-.24	-.38	-.43	-.55	-.17	-.40	-.33	-					
18. Allow teachers to carry in schools	2,069	3.37	1.27	1	5	-.15	-.15	-.22	-.31	-.23	.38	-.32	-.24	-.63	-.13	-.32	-.38	-.46	-.11	-.35	-.28	.65	-				
19. Require background check for concealed carry	2,062	4.32	0.93	1	5	.47	.49	.50	.40	.38	-.35	.63	.56	.36	.28	.49	.46	.37	.46	.33	.43	-.24	-.23	-			
20. Restricting concealed campus carry	2,067	3.01	1.31	1	5	.29	.35	.36	.40	.37	-.41	.44	.39	.74	.31	.45	.50	.59	.29	.46	.41	-.63	-.61	.37	-		
21. Requiring safety course for purchase	2,067	3.83	1.14	1	5	.33	.38	.42	.36	.38	-.32	.53	.39	.32	.29	.53	.43	.36	.35	.43	.38	-.28	-.24	.50	.33	-	
22. Requiring a permit for concealed handgun carry	2,069	4.05	1.14	1	5	.41	.45	.51	.41	.40	-.43	.61	.49	.42	.35	.54	.52	.43	.45	.40	.43	-.33	-.30	.66	.43	.49	-
23. Banning military-style semi-auto weapons	2,067	3.02	1.52	1	5	.29	.39	.36	.44	.38	-.42	.51	.43	.51	.34	.54	.59	.81	.28	.48	.44	-.53	-.47	.39	.58	.38	.44

Note. Weighted counts, means, standard deviations, and correlations are provided for each variable. Weighted counts have been rounded to the nearest whole number.

Table B2

Bivariate Correlations for Research Question 2 Variables

Variable	*n*	*M*	*SD*	min	max	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Overall 'Unsafe Ownership' Policy Attitudes	2,026	-0.02	0.65	-2.30	1.26	-												
2. Pro-Unsafe Ownership Attitudes	2,034	10.96	5.04	0.00	18.00	.96	-											
3. Anti-Unsafe Ownership Attitudes	2,034	0.67	2.26	0.00	18.00	-.55	-.43	-										
4. Overall 'Firearm Locations' Policy Attitudes	2,026	-0.01	0.79	-1.97	1.72	.65	.53	-.41	-									
5. Pro-Unsafe Ownership Attitudes	2,048	1.59	2.25	0.00	8.00	.52	.45	-.14	.81	-								
6. Anti-Unsafe Ownership Attitudes	2,048	2.03	2.37	0.00	8.00	-.44	-.31	.44	-.83	-.46	-							
7. Overall 'Increased Lethality' Policy Attitudes	2,026	-0.01	0.83	-2.25	1.67	.74	.62	-.45	.84	.61	-.67	-						
8. Pro-Unsafe Ownership Attitudes	2,060	1.25	1.54	0.00	4.00	.61	.53	-.20	.64	.55	-.41	.87	-					
9. Anti-Unsafe Ownership Attitudes	2,060	0.96	1.60	0.00	4.00	-.47	-.37	.44	-.62	-.32	.63	-.79	-.47	-				
10. Precontemplation Behavior Score	2,072	1.20	0.48	1.00	5.00	-.35	-.31	.30	-.35	-.21	.34	-.34	-.22	.28	-			
11. Gun Violence Prevention Intention	1,971	3.23	2.52	0.00	10.00	.15	.14	-.03	.11	.18	-.04	.11	.13	-.02	.12	-		
12. Unsafe Ownership Gun Policy Ambivalence	2,034	-5.20	2.98	-9.00	7.00	-.81	-.84	.30	-.48	-.41	.31	-.56	-.49	.37	.26	-.12	-	
13. Firearm Locations Gun Policy Ambivalence	2,048	-1.25	1.59	-4.00	4.00	.04	.01	-.21	.17	-.23	-.41	.15	-.01	-.29	-.14	-.10	-.05	-
14. Increased Lethality Gun Policy Ambivalence	2,060	-1.06	0.86	-2.00	2.00	-.08	-.11	-.22	.01	-.20	-.22	-.04	-.44	-.48	-.08	-.07	.07	.28

Note. Weighted counts, means, standard deviations, and correlations are provided for each variable. Weighted counts have been rounded to the nearest whole number.

Table B3

Bivariate Correlations for Research Question 3 Variables

Variable	*n*	*M*	*SD*	min	max	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1. Preventing purchase if mentally ill	2,074	4.37	0.86	1.00	5.00	-																											
2. Barring purchase if on no-fly and watch list	2,068	3.95	1.10	1.00	5.00	.45	-																										
3. Prohibiting possession during DV restraining order	2,060	4.12	0.98	1.00	5.00	.47	.54	-																									
4. Universal background checks	2,068	3.98	1.13	1.00	5.00	.44	.52	.49	-																								
5. Prohibiting possession if risk to self/others	2,063	4.18	0.95	1.00	5.00	.58	.56	.56	.56	-																							
6. Restricting concealed carry in elementary schools	2,066	3.19	1.32	1.00	5.00	.30	.30	.34	.41	.36	-																						
7. Banning high-capacity magazines	2,068	2.94	1.45	1.00	5.00	.29	.37	.36	.50	.42	.53	-																					
8. Ten-year restriction for serious juvenile offenses	2,066	4.07	0.94	1.00	5.00	.43	.44	.52	.41	.47	.24	.28	-																				
9. Concealed carry in more places	2,068	3.45	1.20	1.00	5.00	-.17	-.21	-.25	-.35	-.26	-.58	-.55	-.17	-																			
10. Allow teachers to carry in schools	2,069	3.37	1.27	1.00	5.00	-.15	-.15	-.22	-.32	-.24	-.63	-.46	-.11	.65	-																		
11. Require background check for concealed carry	2,062	4.32	0.93	1.00	5.00	.47	.49	.50	.63	.56	.36	.37	.46	-.24	-.23	-																	
12. Restricting concealed campus carry	2,067	3.01	1.31	1.00	5.00	.29	.35	.36	.44	.39	.74	.59	.29	-.63	-.61	.37	-																
13. Requiring safety course for purchase	2,067	3.83	1.14	1.00	5.00	.33	.38	.42	.53	.39	.32	.36	.35	-.28	-.24	.50	.33	-															
14. Requiring a permit for concealed handgun carry	2,069	4.05	1.14	1.00	5.00	.41	.45	.51	.61	.49	.42	.43	.45	-.33	-.30	.66	.43	.49	-														
15. Banning military-style semi-auto weapons	2,067	3.02	1.52	1.00	5.00	.29	.39	.36	.51	.43	.51	.81	.28	-.53	-.47	.39	.58	.38	.44	-													
16. GVPI: Contacting public official to support policy	2,053	3.11	3.36	0.00	10.00	.08	.11	.16	.19	.16	.19	.20	.10	-.22	-.25	.15	.19	.17	.17	.23	-												
17. GVPI: Donating to a GV prevention organization	2,053	2.24	2.97	0.00	10.00	.09	.12	.15	.20	.16	.20	.22	.08	-.25	-.26	.14	.20	.18	.18	.25	.60	-											
18. GVPI: Talking to family/friends about GV	2,058	5.25	3.60	0.00	10.00	.08	.09	.15	.15	.12	.12	.09	.08	-.09	-.10	.11	.11	.15	.12	.09	.48	.42	-										
19. GVPI: Attending a public health policy discussion	2,046	3.16	3.30	0.00	10.00	.03	.02	.09	.10	.08	.08	.08	.03	-.11	-.15	.06	.07	.13	.08	.12	.64	.56	.52	-									
20. GVPI: Testifying in favor of policy at a public hearing	2,063	2.54	3.17	0.00	10.00	.03	.08	.07	.13	.11	.12	.15	.05	-.16	-.17	.10	.13	.13	.11	.17	.67	.55	.43	.66	-								
21. GVPI: Writing a letter to the editor supporting policy	2,064	2.41	3.04	0.00	10.00	.04	.08	.11	.16	.11	.13	.16	.05	-.17	-.19	.10	.13	.14	.12	.20	.70	.61	.44	.64	.67	-							
22. GVPI: Comment on an online policy discussion	2,061	2.40	3.07	0.00	10.00	.02	.05	.10	.14	.09	.12	.13	.03	-.17	-.18	.09	.13	.12	.10	.16	.65	.52	.42	.61	.64	.73	-						
23. GVPI: Talking to other gun owners to gain support	2,060	2.98	3.23	0.00	10.00	.02	.04	.06	.12	.10	.08	.09	.02	-.13	-.14	.08	.07	.14	.10	.10	.64	.55	.51	.68	.68	.67	.62	-					
24. GVPI: Talking to non-gun owners gain support	2,059	2.94	3.27	0.00	10.00	.02	.03	.07	.12	.11	.09	.05	.00	-.11	-.12	.08	.08	.12	.10	.09	.64	.53	.51	.68	.66	.66	.62	.76	-				
25. GVPI: Talking to gun owners about gun safety	2,057	4.35	3.65	0.00	10.00	-.04	-.07	-.02	-.05	-.05	-.11	-.17	-.01	.13	.07	-.03	-.16	.02	-.05	-.18	.42	.32	.50	.52	.46	.46	.42	.58	.55	-			
26. GVPI: Teach a group of youth about gun safety	2,059	4.39	3.81	0.00	10.00	-.08	-.13	-.07	-.17	-.13	-.19	-.27	-.08	.20	.15	-.11	-.24	-.07	-.13	-.28	.32	.25	.37	.42	.38	.36	.36	.43	.44	.65	-		
27. Unsafe Ownership Gun Policy Ambivalence	2,034	-5.20	2.98	-9.00	7.00	-.47	-.58	-.59	-.67	-.58	-.39	-.47	-.50	.33	.29	-.57	-.42	-.57	-.62	-.48	-.18	-.22	-.15	-.10	-.12	-.15	-.13	-.09	-.11	.06	.14	-	
28. Firearm Locations Gun Policy Ambivalence	2,048	-1.25	1.59	-4.00	4.00	.03	.13	.05	.12	.05	.20	.12	-.01	.00	.03	.05	.17	.06	.12	.13	-.08	-.04	-.05	-.08	-.05	-.06	-.06	-.04	-.07	-.13	-.15	-.05	-
29. Increased Lethality Gun Policy Ambivalence	2,060	-1.06	0.86	-2.00	2.00	-.07	.05	-.01	.04	.00	.00	-.10	-.06	.00	.01	.00	.00	.02	.03	-.05	-.07	-.04	-.05	-.06	-.04	-.05	-.06	.00	-.03	-.06	-.07	.07	.28

Note. Weighted counts, means, standard deviations, and correlations are provided for each variable. Weighted counts have been rounded to the nearest whole number.

APPENDIX C

DEMOGRAPHIC TABLES FOR ESTIMATED LATENT PROFILES

Table C1

Selected Demographics for Unsafe Ownership Policy Attitude Profiles

	Precontemplation	Contemplation	Preparation	Maintenance	Overall Sample
n	43	361	947	718	2,086
Gender					
Male	78.34%	78.93%	68.54%	63.63%	68.71%
Female	21.66%	21.07%	31.46%	36.37%	31.29%
Race and Ethnicity					
White, non-Hispanic	76.57%	82.11%	79.34%	68.95%	76.30%
Black, non-Hispanic	0.00%	5.49%	7.58%	10.69%	8.15%
Other, non-Hispanic	0.00%	3.08%	4.38%	4.51%	4.06%
Any Race, Hispanic	17.94%	7.71%	7.46%	14.60%	10.10%
Multiracial, non-Hispanic	5.50%	1.61%	1.25%	1.25%	1.38%
Children					
Live with children under 18	41.17%	27.75%	22.65%	18.89%	22.55%
Highest Education Completed					
Less than high school	17.70%	6.97%	6.80%	5.07%	6.55%
High school	30.13%	24.61%	28.57%	28.74%	28.30%
Some college	22.01%	36.55%	33.37%	32.79%	33.28%
Bachelor's degree or higher	30.16%	31.87%	31.26%	33.40%	31.87%
Political Party					
Republican	54.67%	64.83%	55.27%	37.91%	51.25%
Independent	43.79%	25.25%	22.69%	20.91%	22.79%
Democrat	1.53%	9.73%	21.76%	41.18%	25.77%
Political Ideology					
Conservative	64.60%	63.95%	52.99%	34.46%	48.86%
Moderate	12.80%	28.94%	31.95%	39.88%	33.55%
Liberal	22.59%	6.77%	14.49%	25.33%	17.07%
Income					
Less than $25,000	8.26%	9.16%	8.76%	6.09%	8.09%
$25,000 to $49,999	19.94%	17.10%	16.14%	15.20%	16.00%
$50,000 to $99,999	20.02%	35.19%	35.46%	33.21%	34.18%
$100,000 or more	51.79%	38.54%	39.64%	45.49%	41.74%
Primary Reason for Gun Ownership					
Defense	54.36%	54.23%	60.30%	60.16%	59.03%
Recreation	11.76%	24.74%	27.31%	28.12%	26.67%
Rights/Power	14.43%	17.26%	6.95%	3.89%	7.86%
Other	19.46%	3.78%	5.25%	6.91%	5.86%

Note. Weighed profile membership counts rounded to the nearest whole number are depicted in the table above.

Table C2

Selected Demographics for Firearm Locations Policy Attitude Profiles

	Precontemplation Attitudes	Precontemplation Behaviors	Contemplation	Preparation/ Action	Maintenance	Overall
n	253	569	786	285	177	2,086
Gender						
Male	83.63%	70.52%	63.26%	65.03%	72.04%	68.71%
Female	16.37%	29.48%	36.74%	34.97%	27.96%	31.29%
Race and Ethnicity						
White, non-Hispanic	84.81%	81.78%	74.06%	72.12%	62.06%	76.30%
Black, non-Hispanic	1.52%	2.02%	11.63%	10.68%	17.46%	8.15%
Other, non-Hispanic	2.35%	4.93%	4.36%	3.76%	3.31%	4.06%
Any Race, Hispanic	8.76%	10.44%	8.34%	12.82%	15.34%	10.10%
Multiracial, non-Hispanic	2.56%	0.83%	1.62%	0.62%	1.83%	1.38%
Children						
Live with children under 18	33.26%	27.19%	18.18%	17.96%	19.52%	22.55%
Highest Education Completed						
Less than high school	2.73%	4.26%	10.70%	3.39%	4.75%	6.55%
High school	24.76%	29.96%	30.70%	28.53%	14.55%	28.30%
Some college	33.95%	35.27%	32.16%	33.85%	31.78%	33.28%
Bachelor's degree or higher	38.55%	30.51%	26.44%	34.23%	48.92%	31.87%
Political Party						
Republican	68.64%	69.47%	48.49%	31.30%	9.25%	51.25%
Independent	26.52%	21.85%	23.44%	20.00%	23.59%	22.79%
Democrat	4.58%	8.22%	28.07%	48.70%	67.16%	25.77%
Political Ideology						
Conservative	75.22%	64.19%	45.52%	26.49%	11.36%	48.86%
Moderate	18.04%	29.21%	38.91%	40.30%	37.02%	33.55%
Liberal	5.93%	6.26%	15.09%	32.79%	51.61%	17.07%
Income						
Less than $25,000	5.24%	6.72%	11.06%	4.50%	6.72%	8.09%
$25,000 to $49,999	14.54%	14.37%	18.39%	18.57%	8.96%	16.00%
$50,000 to $99,999	36.36%	34.89%	33.79%	35.11%	29.92%	34.18%
$100,000 or more	43.86%	44.02%	36.76%	41.82%	54.40%	41.74%
Primary Reason for Gun Ownership						
Defense	62.32%	65.68%	61.68%	44.62%	43.73%	59.03%
Recreation	14.77%	20.69%	25.68%	41.16%	45.95%	26.67%
Rights/Power	18.60%	8.81%	6.53%	5.47%	0.00%	7.86%
Other	4.31%	4.17%	6.05%	8.06%	9.02%	5.86%

Note. Weighed profile membership counts rounded to the nearest whole number are depicted in the table above.

Table C3

Selected Demographics for Increased Lethality Policy Attitude Profiles

	Precontemplation	Contemplation	Post-Contemplation	Overall
n	403	1,142	528	2,086
Gender				
Male	85.17%	66.75%	60.31%	68.71%
Female	14.83%	33.25%	39.69%	31.29%
Race and Ethnicity				
White, non-Hispanic	80.81%	77.93%	68.72%	76.30%
Black, non-Hispanic	2.41%	7.71%	13.69%	8.15%
Other, non-Hispanic	3.79%	4.44%	3.57%	4.06%
Any Race, Hispanic	11.53%	8.52%	12.68%	10.10%
Multiracial, non-Hispanic	1.46%	1.39%	1.34%	1.38%
Children				
Live with children under 18	30.45%	23.44%	14.57%	22.55%
Highest Education Completed				
Less than high school	5.92%	6.05%	7.64%	6.55%
High school	21.82%	30.94%	27.10%	28.30%
Some college	35.71%	33.85%	30.56%	33.28%
Bachelor's degree or higher	36.54%	29.16%	34.70%	31.87%
Political Party				
Republican	67.10%	54.02%	32.27%	51.25%
Independent	27.44%	23.86%	17.28%	22.79%
Democrat	4.94%	22.01%	50.45%	25.77%
Political Ideology				
Conservative	68.44%	50.68%	29.71%	48.86%
Moderate	23.48%	34.77%	38.95%	33.55%
Liberal	7.57%	14.14%	30.89%	17.07%
Income				
Less than $25,000	6.15%	8.69%	7.81%	8.09%
$25,000 to $49,999	13.55%	16.48%	17.00%	16.00%
$50,000 to $99,999	33.77%	35.41%	32.01%	34.18%
$100,000 or more	46.53%	39.42%	43.18%	41.74%
Primary Reason for Gun Ownership				
Defense	57.35%	61.61%	54.66%	59.03%
Recreation	21.56%	25.18%	34.19%	26.67%
Rights/Power	16.48%	7.26%	2.79%	7.86%
Other	3.69%	5.82%	7.75%	5.86%

Note. Weighed profile membership counts rounded to the nearest whole number are depicted in the table above.

APPENDIX D

Table D1

Defined Variable Abbreviations

Variable Name	Variable Description
Gun Policy Variables	
QMENTALLYILL	Preventing purchase if mentally ill
QNOFLYLIST	Barring purchase if on no-fly and watch list
QDVRO	Prohibiting possession during DV restraining order
QAGE21	Prohibiting ownership under the age of 21
QDRUNK	Ten-year restriction for drunk and disorderly conviction
QSHORTENWAITING	Shorten wait period for legal purchases
QUNIVERSAL	Universal background checks
QRISK	Prohibiting possession if risk to self/others
QSCHOOLS	Restricting concealed carry in elementary schools
QMAYISSUE	Give LEOs discretion to approve concealed carry
QPERMIT	Requiring a permit to purchase
QDATABASE	Creating a federal database to track purchases
QMAGAZINES	Banning high-capacity magazines
QJUVENILE	Ten-year restriction for serious juvenile offenses
QLOCK	Requiring guns to be locked when unused
QLIABILITY	Allowing negligent gun dealers to be sued
QEXPANDCC	Concealed carry in more places
QTEACHERCARRY	Allow teachers to carry in schools
QCCBACKGROUND	Require background check for concealed carry
QCOLLEGE	Restricting concealed campus carry
QSAFETYCOURSE	Requiring safety course for purchase
QPERMITH	Requiring a permit for concealed handgun carry
QASSAULT	Banning military-style semi-auto weapons
Gun Violence Prevention Behavioral Intentions	
ENGAGE4	GVPI: Contacting public officials to support policy
ENGAGE5	GVPI: Donating to a GV prevention organization
ENGAGE6	GVPI: Talking to family/friends about GV
ENGAGE7	GVPI: Attending a public health policy discussion
ENGAGE8	GVPI: Testifying in favor of policy at a public hearing
ENGAGE9	GVPI: Writing a letter to the editor supporting policy
ENGAGE10	GVPI: Comment on an online policy discussion
ENGAGE11	GVPI: Talking to other gun owners to gain support
ENGAGE12	GVPI: Talking to non-gun owners gain support
ENGAGE13	GVPI: Talking to gun owners about gun safety
ENGAGE14	GVPI: Teach a group of youth about gun safety

Note. GVPI = Gun Violence Prevention Intentions

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Pearson.

American Psychological Association. (2014). *Resolution on firearm violence research and prevention*. http://www.apa.org/about/policy/fireams.pdf

Anatchkova, M. D., Velicer, W. F., & Prochaska, J. O. (2006). Replication of subtypes for smoking cessation within the precontemplation stage of change. *Addictive Behaviors*, *31*(7), 1101–1115. https://doi.org/10.1016/j.addbeh.2005.08.002

Andrews, M. E., Sabado, M., & Choi, K. (2018). Prevalence and characteristics of young adult smokers in the U.S. in the precontemplation stage of smoking cessation. *Addictive Behaviors*, *84*, 167–170. https://doi.org/10.1016/j.addbeh.2018.04.008

Armitage, C. J. (2003). Beyond attitudinal ambivalence: Effects of belief homogeneity on attitude-intention-behaviour relations. *European Journal of Social Psychology*, *33*(4), 551–563. https://doi.org/10.1002/ejsp.164

Armitage, C. J. (2006). Evidence that implementation intentions promote transitions between the stages of change. *Journal of Consulting and Clinical Psychology*, *74*(1), 141–151. https://doi.org/10.1037/0022-006X.74.1.141

Armitage, C. J. (2009). Is there utility in the transtheoretical model? *British Journal of Health Psychology*, *14*(2), 195–210. https://doi.org/10.1348/135910708X368991

Armitage, C. J., & Arden, M. A. (2007). Felt and potential ambivalence across the stages of change. *Journal of Health Psychology*, *12*(1), 149–158. https://doi.org/10.1177/1359105307071749

Armitage, C. J., & Conner, M. (2000). Attitudinal ambivalence: A test of three key hypotheses. *Personality and Social Psychology Bulletin*, *26*(11), 1421–1432. https://doi.org/10.1177/0146167200263009

Armitage, C. J., Povey, R., & Arden, M. A. (2003). Evidence for discontinuity patterns across the stages of change: A role for attitudinal ambivalence. *Psychology & Health*, *18*(3), 373–386. https://doi.org/10.1080/0887044031000066553

Arrigo, B. A., & Acheson, A. (2016). Concealed carry bans and the American college campus: A law, social sciences, and policy perspective. *Contemporary Justice Review*, *19*(1), 120–141. https://doi.org/10.1080/10282580.2015.1101688

Asher, J. (2021, September 22). Murder rose by almost 30% in 2020. It's rising at a slower rate in 2021. *The New York Times*. https://www.nytimes.com/2021/09/22/upshot/murder-rise-2020.html

Balcetis, E., & Dunning, D. (2006). See what you want to see: Motivational influences on visual perception. *Journal of Personality and Social Psychology*, *91*(4), 612–625. https://doi.org/10.1037/0022-3514.91.4.612

Balmford, J., Borland, R., & Burney, S. (2008). Is contemplation a separate stage of change to precontemplation? *International Journal of Behavioral Medicine*, *15*(2), 141–148. https://doi.org/10.1080/10705500801929791

Bandalos, D. L. (2014). Relative performance of categorical diagonally weighted least squares and robust maximum likelihood estimation. *Structural Equation Modeling: A Multidisciplinary Journal*, *21*(1), 102–116. https://doi.org/10.1080/10705511.2014.859510

Barkin, S. L., Finch, S. A., Ip, E. H., Scheindlin, B., Craig, J. A., Steffes, J., Weiley, V., Slora, E., Altman, D., & Wasserman, R. C. (2008). Is office-based counseling about media use, timeouts, and firearm storage effective? Results from a cluster-randomized, controlled trial. *Pediatrics*, *122*(1), e15–e25. https://doi.org/10.1542/peds.2007-2611

Barney, D. J., & Schaffner, B. F. (2019). Reexamining the effect of mass shootings on public support for gun control. *British Journal of Political Science*, *49*(4), 1555–1565. https://doi.org/10.1017/S0007123418000352

Barry, C. L., McGinty, E. E., Vernick, J. S., & Webster, D. W. (2013). After Newtown—Public opinion on gun policy and mental illness. *New England Journal of Medicine*, *368*(12), 1077–1081. https://doi.org/10.1056/NEJMp1300512

Barry, C. L., Stone, E. M., Crifasi, C. K., Vernick, J. S., Webster, D. W., & McGinty, E. E. (2019). Trends in public opinion on US gun laws: Majorities of gun owners and non–gun owners support a range of measures. *Health Affairs*, *38*(10), 1727–1734. https://doi.org/10.1377/hlthaff.2019.00576

Barry, C. L., Webster, D. W., Stone, E., Crifasi, C. K., Vernick, J. S., & McGinty, E. E. (2018). Public support for gun violence prevention policies among gun owners and non-gun owners in 2017. *American Journal of Public Health*, *108*(7), 878–881. https://doi.org/10.2105/AJPH.2018.304432

Berlin, K. S., Williams, N. A., & Parra, G. R. (2014). An introduction to latent variable mixture modeling (part 1): Overview and cross-sectional latent class and latent profile analyses. *Journal of Pediatric Psychology*, *39*(2), 174–187. https://doi.org/10.1093/jpepsy/jst084

Braga, A., Griffiths, E., Sheppard, K., & Douglas, S. (2020). Firearm instrumentality: Do guns make violent situations more lethal? *Annual Review of Criminology*, *4*, 1–18. https://doi.org/10.1146/annurev-criminol-061020-021528

Breckler, S. J. (1994). A comparison of numerical indexes for measuring attitude ambivalence. *Educational and Psychological Measurement*, *54*(2), 350–365. https://doi.org/10.1177/0013164494054002009

Brenan, M. (2022, May 26). *Americans' recent attitudes toward guns*. Gallup.Com. https://news.gallup.com/opinion/gallup/393092/americans-recent-attitudes-toward-guns.aspx

Britton, P. C., Bryan, C. J., & Valenstein, M. (2016). Motivational interviewing for means restriction counseling with patients at risk for suicide. *Cognitive and Behavioral Practice*, *23*(1), 51–61. https://doi.org/10.1016/j.cbpra.2014.09.004

Bryan, C. J., Bryan, A. O., & Anestis, M. D. (2020). Associations among exaggerated threat perceptions, suicidal thoughts, and suicidal behaviors in U.S. firearm owners. *Journal of Psychiatric Research*, *131*, 94–101. https://doi.org/10.1016/j.jpsychires.2020.09.004

Bui, M., Droms, C. M., & Craciun, G. (2014). The impact of attitudinal ambivalence on weight loss decisions: Consequences and mitigating factors. *Journal of Consumer Behaviour*, *13*(4), 303–315. https://doi.org/10.1002/cb.1475

Burton, A. L., Logan, M. W., Pickett, J. T., Cullen, F. T., Jonson, C. L., & Burton Jr., V. S. (2021). Gun owners and gun control: Shared status, divergent opinions. *Sociological Inquiry*, *91*(2), 347–366. https://doi.org/10.1111/soin.12413

Buttrick, N. (2020). Protective gun ownership as a coping mechanism. *Perspectives on Psychological Science*, *15*(4), 835–855.

Buttrick, N., & Mazen, J. (2022). Historical prevalence of slavery predicts contemporary American gun ownership. *PNAS Nexus*, *1*(3), pgac117. https://doi.org/10.1093/pnasnexus/pgac117

Cai, Z., Junus, A., Chang, Q., & Yip, P. S. F. (2022). The lethality of suicide methods: A systematic review and meta-analysis. *Journal of Affective Disorders*, *300*, 121–129. https://doi.org/10.1016/j.jad.2021.12.054

Carpenter, C. J. (2019). Cognitive dissonance, ego-involvement, and motivated reasoning. *Annals of the International Communication Association*, *43*(1), 1–23. https://doi.org/10.1080/23808985.2018.1564881

Carrington, P. J. (1999). Gender, gun control, suicide and homicide in Canada. *Archives of Suicide Research*, *5*(1), 71–75. https://doi.org/10.1080/13811119908258316

Chang, M. K. (1998). Predicting unethical behavior: A comparison of the Theory of Reasoned Action and the Theory of Planned Behavior. *Journal of Business Ethics*, *17*(16), 1825–1834. https://doi.org/10.1023/A:1005721401993

Clark, S. L., & Muthén, B. (2009). *Relating latent class analysis results to variables not included in the analysis*. https://www.statmodel.com/download/relatinglca.pdf

Conner, M., Povey, R., Sparks, P., James, R., & Shepherd, R. (2003). Moderating role of attitudinal ambivalence within the theory of planned behaviour. *British Journal of Social Psychology*, *42*(1), 75–94. https://doi.org/10.1348/014466603763276135

Cooke, R., & Sheeran, P. (2004). Moderation of cognition-intention and cognition-behaviour relations: A meta-analysis of properties of variables from the theory of planned behaviour. *British Journal of Social Psychology*, *43*(2), 159–186. https://doi.org/10.1348/0144666041501688

Costarelli, S., & Colloca, P. (2007). The moderation of ambivalence on attitude–intention relations as mediated by attitude importance. *European Journal of Social Psychology*, *37*(5), 923–933. https://doi.org/10.1002/ejsp.403

Costello, A., & Osborne, J. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research & Evaluation*, *10*, 1–9.

Coyne-Beasley, T., Schoenbach, V. J., & Johnson, R. M. (2001). "Love our kids, lock your guns": A community-based firearm safety counseling and gun lock distribution program. *Archives of Pediatrics & Adolescent Medicine*, *155*(6), 659–664. https://doi.org/10.1001/archpedi.155.6.659

Crifasi, C. K., Stone, E. M., McGinty, B., Vernick, J. S., Barry, C. L., & Webster, D. W. (2020). Differences in public support for handgun purchaser licensing. *Injury Prevention*, *26*(1), 93–95. https://doi.org/10.1136/injuryprev-2019-043405

Crifasi, C. K., Ward, J. A., McGinty, E. E., Webster, D. W., & Barry, C. L. (2021). Public opinion on gun policy by race and gun ownership status. *Preventive Medicine*, *149*, 106607. https://doi.org/10.1016/j.ypmed.2021.106607

Degli Esposti, M., Wiebe, D. J., Gasparrini, A., & Humphreys, D. K. (2022). Analysis of "stand your ground" self-defense laws and statewide rates of homicides and firearm homicides. *JAMA Network Open*, *5*(2), e220077. https://doi.org/10.1001/jamanetworkopen.2022.0077

DeMarree, K. G., Christian Wheeler, S., Briñol, P., & Petty, R. E. (2014). Wanting other attitudes: Actual–desired attitude discrepancies predict feelings of ambivalence and ambivalence consequences. *Journal of Experimental Social Psychology*, *53*, 5–18. https://doi.org/10.1016/j.jesp.2014.02.001

Derisley, J., & Reynolds, S. (2000). The transtheoretical stages of change as a predictor of premature termination, attendance and alliance in psychotherapy. *British Journal of Clinical Psychology*, *39*(4), 371–382. https://doi.org/10.1348/014466500163374

Di Noia, J., & Prochaska, J. O. (2010). Dietary stages of change and decisional balance: A meta-analytic review. *American Journal of Health Behavior*, *34*(5), 618–632. https://doi.org/10.5993/AJHB.34.5.11

DiClemente, C. C., Prochaska, J. O., Fairhurst, S. K., Velicer, W. F., Velasquez, M. M., & Rossi, J. S. (1991). The process of smoking cessation: An analysis of precontemplation, contemplation, and preparation stages of change. *Journal of Consulting and Clinical Psychology*, *59*(2), 295–304. https://doi.org/10.1037//0022-006x.59.2.295

DiClemente, C. C., Schlundt, D., & Gemmell, L. (2004). Readiness and stages of change in addiction treatment. *The American Journal on Addictions*, *13*(2), 103–119. https://doi.org/10.1080/10550490490435777

DiClemente, C. C., & Velasquez, M. M. (2002). Motivational interviewing and the stages of change. In W. R. Miller & S. Rollnick (Eds.), *Motivational interviewing: Preparing people for change* (Second edition, pp. 201–216). The Guilford Press.

DiStefano, C., & Morgan, G. B. (2014). A comparison of diagonal weighted least squares robust estimation techniques for ordinal data. *Structural Equation Modeling: A Multidisciplinary Journal*, *21*(3), 425–438. https://doi.org/10.1080/10705511.2014.915373

Dixon, G., Garrett, K., Susmann, M., & Bushman, B. J. (2020). Public opinion perceptions, private support, and public actions of US adults regarding gun safety policy. *JAMA Network Open*, *3*(12), e2029571. https://doi.org/10.1001/jamanetworkopen.2020.29571

Donovan, K., Kellstedt, P. M., Key, E. M., & Lebo, M. J. (2020). Motivated reasoning, public opinion, and presidential approval. *Political Behavior*, *42*(4), 1201–1221. https://doi.org/10.1007/s11109-019-09539-8

Dowd-Arrow, B., Hill, T. D., & Burdette, A. M. (2019). Gun ownership and fear. *SSM - Population Health*, *8*. https://doi.org/10.1016/j.ssmph.2019.100463

Dowler, K. (2002). Media influence on attitudes toward guns and gun control. *American Journal of Criminal Justice*, *26*(2), 235–247. https://doi.org/10.1007/BF02887829

Dunton, G. F., Cousineau, M., & Reynolds, K. D. (2010). The intersection of public policy and health behavior theory in the physical activity arena. *Journal of Physical Activity and Health*, *7*(s1), S91–S98. https://doi.org/10.1123/jpah.7.s1.s91

Elias, T., Blaine, M., Morrison, D., & Harris, B. (2019). Media use, cross-national samples, and the theory of planned behavior: Implications for climate change advocacy intentions. *International Journal of Communication*, *13*(0), Article 0.

Ellison, C. G., Kelley, M. S., Leal, D., & Gonzalez, P. E. (2022). How do veterans view gun policies? Evidence from the Guns in American Life Survey. *Social Science Quarterly*, *103*(3), 752–768. https://doi.org/10.1111/ssqu.13145

Faure, R., McNulty, J. K., Meltzer, A. L., & Righetti, F. (2022). Implicit ambivalence: A driving force to improve relationship problems. *Social Psychological and Personality Science*, *13*(2), 500–511. https://doi.org/10.1177/19485506211034277

Fava, J. L., Velicer, W. F., & Prochaska, J. O. (1995). Applying the transtheoretical model to a representative sample of smokers. *Addictive Behaviors*, *20*(2), 189–203. https://doi.org/10.1016/0306-4603(94)00062-X

Filindra, A., Kaplan, N., & Buyuker, B. (2020). *Racial resentment or sexism? White Americans' outgroup attitudes as predictors of gun ownership & NRA membership* (SSRN Scholarly Paper 3635757). https://doi.org/10.2139/ssrn.3635757

Finch, W. H. (2020). Using fit statistic differences to determine the optimal number of factors to retain in an exploratory factor analysis. *Educational and Psychological Measurement*, *80*(2), 217–241. https://doi.org/10.1177/0013164419865769

Flora, D. B., & Flake, J. K. (2017). The purpose and practice of exploratory and confirmatory factor analysis in psychological research: Decisions for scale development and validation. *Canadian Journal of Behavioural Science / Revue Canadienne Des Sciences Du Comportement*, *49*(2), 78–88. https://doi.org/10.1037/cbs0000069

Forward, S. E. (2014). Exploring people's willingness to bike using a combination of the theory of planned behavioural and the transtheoretical model. *European Review of Applied Psychology*, *64*(3), 151–159. https://doi.org/10.1016/j.erap.2014.04.002

Friman, M., Huck, J., & Olsson, L. E. (2017). Transtheoretical Model of Change during travel behavior interventions: An integrative review. *International Journal of Environmental Research and Public Health*, *14*(6), Article 6. https://doi.org/10.3390/ijerph14060581

Gerber, S., & Basham, A. (1999). Responsive therapy and motivational interviewing: Postmodernist paradigms. *Journal of Counseling & Development*, *77*, 418–422. https://doi.org/10.1002/j.1556-6676.1999.tb02468.x

Gius, M. (2016). The relationship between stand-your-ground laws and crime: A state-level analysis. *The Social Science Journal*, *53*(3), 329–338. https://doi.org/10.1016/j.soscij.2016.01.001

Grawert, A., & Kim, N. (2022). *Myths and realities: Understanding recent trends in violent crime*. Brennan Center for Justice. https://www.brennancenter.org/our-work/research-reports/myths-and-realities-understanding-recent-trends-violent-crime

Grene, K., Dharani, A., & Siegel, M. (2023). Gun owners' assessment of gun safety policy: Their underlying principles and detailed opinions. *Injury Epidemiology*, *10*(1), 21. https://doi.org/10.1186/s40621-023-00430-z

Grossman, D. C., Reay, D. T., & Baker, S. A. (1999). Self-inflicted and unintentional firearm injuries among children and adolescents: The source of the firearm. *Archives of Pediatrics & Adolescent Medicine*, *153*(8), 875–878. https://doi.org/10.1001/archpedi.153.8.875

Hale, J. L., Householder, B. J., & Greene, K. L. (2002). The theory of reasoned action. *The Persuasion Handbook: Developments in Theory and Practice*, *14*(2002), 259–286.

Hall, K. L., Robbins, M. L., Paiva, A., Knott, J. E., Harris, L., & Mattice, B. (2007). Donation intentions among African American college students: Decisional balance and self-efficacy measures. *Journal of Behavioral Medicine*, *30*(6), 483–495. https://doi.org/10.1007/s10865-007-9121-8

Harmon-Jones, E., & Mills, J. (2019). An introduction to cognitive dissonance theory and an overview of current perspectives on the theory. In *Cognitive dissonance: Reexamining a pivotal theory in psychology, 2nd ed* (pp. 3–24). American Psychological Association. https://doi.org/10.1037/0000135-001

Hassett, M. R., Kim, B., & Seo, C. (2020). Attitudes toward concealed carry of firearms on campus: A systematic review of the literature. *Journal of School Violence*. https://www.tandfonline.com/doi/abs/10.1080/15388220.2019.1703717

Hathi, S., & Sacks, C. A. (2019). #ThisIsOurLane: Incorporating gun violence prevention into clinical care. *Current Trauma Reports*, *5*(4), 169–173. https://doi.org/10.1007/s40719-019-00174-6

Hauser, W., & Kleck, G. (2013). Guns and fear: A one-way street? *Crime & Delinquency*, *59*(2), 271–291. https://doi.org/10.1177/0011128712462307

Hayes, M., Fortunato, D., & Hibbing, M. V. (2021). Race–gender bias in white Americans' preferences for gun availability. *Journal of Public Policy*, *41*(4), 818–834. https://doi.org/10.1017/S0143814X20000288

Hemenway, D. (2011). Risks and benefits of a gun in the home. *American Journal of Lifestyle Medicine*, *5*(6), 502–511. https://doi.org/10.1177/1559827610396294

Herrick, A. B., Stone, W. J., & Mettler, M. M. (1997). Stages of change, decisional balance, and self-efficacy across four health behaviors in a worksite environment. *American Journal of Health Promotion: AJHP*, *12*(1), 49–56. https://doi.org/10.4278/0890-1171-12.1.49

Higginbotham, G. D., Sears, D. O., & Goldstein, L. (2022). When an irresistible prejudice meets immovable politics: Black legal gun ownership undermines racially resentful White Americans' gun rights advocacy. *Journal of Experimental Psychology: General*, No Pagination Specified-No Pagination Specified. https://doi.org/10.1037/xge0001275

Hogg, M. A., & Smith, J. R. (2007). Attitudes in social context: A social identity perspective. *European Review of Social Psychology*. https://doi.org/10.1080/10463280701592070

Hohman, Z. P., Crano, W. D., Siegel, J. T., & Alvaro, E. M. (2014). Attitude Ambivalence, Friend Norms, and Adolescent Drug Use. *Prevention Science*, *15*(1), 65–74. https://doi.org/10.1007/s11121-013-0368-8

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, *6*(1), 1–55. https://doi.org/10.1080/10705519909540118

Jamieson, D. W. (1988). *The influence of value conflicts on attitudinal ambivalence*. annual meeting of the Canadian Psychological Association, Montreal.

Janis, I. L., & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment* (pp. xx, 488). Free Press.

Jonas, K., Diehl, M., & Brömer, P. (1997). Effects of attitudinal ambivalence on information processing and attitude-intention consistency. *Journal of Experimental Social Psychology*, *33*(2), 190–210. https://doi.org/10.1006/jesp.1996.1317

Jonas, K., & Ziegler, R. (2007). Attitudinal ambivalence. In *The scope of social psychology* (pp. 41–54). Psychology Press.

Jordan, P. J., Nigg, C. R., Norman, G. J., Rossi, J. S., & Benisovich, S. V. (2002). Does the transtheoretical model need an attitude adjustment?: Integrating attitude with decisional balance as predictors of stage of change for exercise. *Psychology of Sport and Exercise*, *3*(1), 65–83. https://doi.org/10.1016/S1469-0292(01)00005-X

Joslyn, M. R., & Haider-Markel, D. P. (2017). Gun ownership and self-serving attributions for mass shooting tragedies. *Social Science Quarterly*, *98*(2), 429–442. https://doi.org/10.1111/ssqu.12420

Kahan, D. M. (2012). *Ideology, motivated reasoning, and cognitive reflection: An experimental study* (SSRN Scholarly Paper 2182588). https://doi.org/10.2139/ssrn.2182588

Kahan, D. M. (2017). *Misconceptions, misinformation, and the logic of identity-protective cognition* (SSRN Scholarly Paper 2973067). https://doi.org/10.2139/ssrn.2973067

Kalesan, B., Villarreal, M. D., Keyes, K. M., & Galea, S. (2016). Gun ownership and social gun culture. *Injury Prevention*, *22*(3), 216–220. https://doi.org/10.1136/injuryprev-2015-041586

Kaplan, K. J. (1972). On the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. *Psychological Bulletin*, *77*, 361–372. https://doi.org/10.1037/h0032590

Katz, I., Wackenhut, J., & Hass, R. G. (1986). Racial ambivalence, value duality, and behavior. In *Prejudice, discrimination, and racism* (pp. 35–59). Academic Press.

Kellermann, A. L., Fuqua-Whitley, D. S., Sampson, T. R., & Lindenmann, W. (2000). Public opinion about guns in the home. *Injury Prevention*, *6*(3), 189–194. https://doi.org/10.1136/ip.6.3.189

Kim, S., Jeong, S.-H., & Hwang, Y. (2013). Predictors of pro-environmental behaviors of American and Korean students: The application of the theory of reasoned action and protection motivation theory. *Science Communication*, *35*(2), 168–188.

Kleck, G., & Patterson, E. B. (1993). The impact of gun control and gun ownership levels on violence rates. *Journal of Quantitative Criminology*, *9*(3), 249–287. https://doi.org/10.1007/BF01064462

Klonek, F. E., Isidor, R., & Kauffeld, S. (2015). Different Stages of Entrepreneurship: Lessons from the Transtheoretical Model of Change. *Journal of Change Management*, *15*(1), 43–63. https://doi.org/10.1080/14697017.2014.918049

Krebs, P., Norcross, J. C., Nicholson, J. M., & Prochaska, J. O. (2018). Stages of change and psychotherapy outcomes: A review and meta-analysis. *Journal of Clinical Psychology*, *74*(11), 1964–1979. https://doi.org/10.1002/jclp.22683

Kremers, S. P. J., Mudde, A. N., & de Vries, H. (2001). Subtypes within the precontemplation stage of adolescent smoking acquisition. *Addictive Behaviors*, *26*(2), 237–251. https://doi.org/10.1016/S0306-4603(00)00104-0

Kruis, N. E., Wentling, R. L., Frye, T. S., & Rowland, N. J. (2023). Firearm ownership, defensive gun usage, and support for gun control: Does knowledge matter? *American Journal of Criminal Justice*, *48*(1), 21–50. https://doi.org/10.1007/s12103-021-09644-7

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*(3), 480–498. https://doi.org/10.1037/0033-2909.108.3.480

Lacombe, M. J. (2019). The political weaponization of gun owners: The National Rifle Association's cultivation, dissemination, and use of a group social identity. *The Journal of Politics*, *81*(4), 1342–1356. https://doi.org/10.1086/704329

Lacombe, M. J., Howat, A. J., & Rothschild, J. E. (2019). Gun ownership as a social identity: Estimating behavioral and attitudinal relationships. *Social Science Quarterly*, *100*(6), 2408–2424. https://doi.org/10.1111/ssqu.12710

Lavine, H. G., Johnston, C. D., & Steenbergen, M. R. (2012). *The ambivalent partisan: How critical loyalty promotes democracy* (pp. xviii, 298). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199772759.001.0001

Leenaars, A. A., & Lester, D. (2001). The impact of gun control (Bill C-51) on homicide in Canada. *Journal of Criminal Justice*, *29*(4), 287–294. https://doi.org/10.1016/S0047-2352(01)00094-0

Leenaars, A., & Lester, D. (1997). The impact of gun control on suicide and homicide across the life span. *Canadian Journal of Behavioural Science/Revue Canadienne Des Sciences Du Comportement*, *29*, 1–6. https://doi.org/10.1037/0008-400X.29.1.1

Lester, D., & Murrell, M. E. (1982). The preventive effect of strict gun control laws on suicide and homicide. *Suicide and Life-Threatening Behavior*, *12*(3), 131–140. https://doi.org/10.1111/j.1943-278X.1982.tb00935.x

Levine, M., Prosser, A., Evans, D., & Reicher, S. (2005). Identity and emergency intervention: How social group membership and inclusiveness of group boundaries shape helping behavior. *Personality and Social Psychology Bulletin*, *31*(4), 443–453. https://doi.org/10.1177/0146167204271651

Li, C.-H. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior Research Methods*, *48*(3), 936–949. https://doi.org/10.3758/s13428-015-0619-7

Lipkus, I. M., Green, J. D., Feaganes, J. R., & Sedikides, C. (2001). The relationship between attitudinal ambivalence and desire to quit smoking among college smokers. *Journal of Applied Social Psychology*, *31*, 113–133. https://doi.org/10.1111/j.1559-1816.2001.tb02485.x

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198–1202. https://doi.org/10.1080/01621459.1988.10478722

Lorenzo-Seva, U. (2022). SOLOMON: A method for splitting a sample into equivalent subsamples in factor analysis. *Behavior Research Methods*, *54*(6), 2665–2677. https://doi.org/10.3758/s13428-021-01750-y

Luca, M., Malhotra, D., & Poliquin, C. (2020). The impact of mass shootings on gun policy. *Journal of Public Economics*, *181*, 104083. https://doi.org/10.1016/j.jpubeco.2019.104083

Magill, M., Apodaca, T. R., Borsari, B., Gaume, J., Hoadley, A., Gordon, R. E. F., Tonigan, J. S., & Moyers, T. (2018). A meta-analysis of motivational interviewing process: Technical, relational, and conditional process models of change. *Journal of Consulting and Clinical Psychology*, *86*(2), 140–157. https://doi.org/10.1037/ccp0000250

Magill, M., & Hallgren, K. A. (2019). Mechanisms of behavior change in motivational interviewing: Do we understand how MI works? *Current Opinion in Psychology*, *30*, 1–5. https://doi.org/10.1016/j.copsyc.2018.12.010

Mahler, A. J., & Fielding, J. E. (1977). Firearms and gun control: A public-health concern. *The New England Journal of Medicine*, *297*(10), 556–558. https://doi.org/10.1056/NEJM197709082971011

Martins, R. K., & McNeil, D. W. (2009). Review of Motivational Interviewing in promoting health behaviors. *Clinical Psychology Review*, *29*(4), 283–293. https://doi.org/10.1016/j.cpr.2009.02.001

McClellan, C., & Tekin, E. (2017). Stand your ground laws, homicides, and injuries. *Journal of Human Resources*, *52*(3), 621–653. https://doi.org/10.3368/jhr.52.3.0613-5723R2

McCracken, H. (2020). *Gun ownership in America*. RAND. https://www.rand.org/research/gun-policy/gun-ownership.html

McGinty, E. E., Webster, D. W., & Barry, C. L. (2014). Gun policy and serious mental illness: Priorities for future research and policy. *Psychiatric Services*, *65*(1), 50–58. https://doi.org/10.1176/appi.ps.201300141

McGinty, E. E., Webster, D. W., Jarlenski, M., & Barry, C. L. (2014). News media framing of serious mental illness and gun violence in the United States, 1997–2012. *American Journal of Public Health*, *104*(3), 406–413. https://doi.org/10.2105/AJPH.2013.301557

McMahon-Howard, J., Scherer, H., & McCafferty, J. T. (2020). Concealed guns on college campuses: Examining support for campus carry among faculty, staff, and students. *Journal of School Violence*. https://www.tandfonline.com/doi/abs/10.1080/15388220.2018.1553717

Meffert, M. F., Guge, M., & Lodge, M. (2018). Good, bad, and ambivalent: The consequences of multidimensional political attitudes. In *Studies in public opinion* (pp. 63–92). Princeton University Press. https://doi.org/10.1515/9780691188386-005

Merino, S. M. (2018). God and guns: Examining religious influences on gun control attitudes in the United States. *Religions*, *9*(6), Article 6. https://doi.org/10.3390/rel9060189

Metzl, J. M., & MacLeish, K. T. (2015). Mental illness, mass shootings, and the politics of American firearms. *American Journal of Public Health*, *105*(2), 240–249. https://doi.org/10.2105/AJPH.2014.302242

Metzl, J. M., Piemonte, J., & McKay, T. (2021). Mental illness, mass shootings, and the future of psychiatric research into American gun violence. *Harvard Review of Psychiatry*, *29*(1), 81–89. https://doi.org/10.1097/HRP.0000000000000280

Meyler, E., & Lester, D. (1997). Attitudes toward gun control. *Perceptual and Motor Skills*, *84*(3), 962–962. https://doi.org/10.2466/pms.1997.84.3.962

Migneault, J. P., Adams, T. B., & Read, J. P. (2005). Application of the Transtheoretical Model to substance abuse: Historical development and future directions. *Drug and Alcohol Review*, *24*(5), 437–448. https://doi.org/10.1080/09595230500290866

Miller, W. R. (1983). Motivational interviewing with problem drinkers. *Behavioural and Cognitive Psychotherapy*, *11*(2), 147–172. https://doi.org/10.1017/S0141347300006583

Miller, W. R., & Rollnick, S. (1991). *Motivational interviewing: Preparing people to change addictive behavior* (pp. xvii, 348). The Guilford Press.

Miller, W. R., & Rollnick, S. (2009). Ten things that motivational interviewing is not. *Behavioural and Cognitive Psychotherapy*, *37*(2), 129–140. https://doi.org/10.1017/S1352465809005128

Miller, W. R., & Rose, G. S. (2015). Motivational interviewing and decisional balance: Contrasting responses to client ambivalence. *Behavioural and Cognitive Psychotherapy*, *43*(2), 129–141. https://doi.org/10.1017/S1352465813000878

Mueller, R. O., & Hancock, G. R. (2008). *Best practices in structural equation modeling* (J. Osborne, Ed.; pp. 488–508). SAGE Publications, Inc. https://doi.org/10.4135/9781412995627.d38

Mulligan, K. (2013). Variability or moderation? The effects of ambivalence on political opinions. *Political Behavior*, *35*(3), 539–565.

Muthén, L. K., & Muthén, B. O. (2017). *Mplus User's Guide* (Eighth Edition). Muthén & Muthén. http://www.statmodel.com/HTML_UG/introV8.htm

Nanney, J. T., Conrad, E. J., Reuther, E. T., Wamser-Nanney, R. A., McCloskey, M., & Constans, J. I. (2018). Motivational interviewing for victims of armed community violence: A nonexperimental pilot feasibility study. *Psychology of Violence*, *8*(2), 259–268. https://doi.org/10.1037/vio0000103

Newby-Clark, I. R., McGregor, I., & Zanna, M. P. (2002). Thinking and caring about cognitive inconsistency: When and for whom does attitudinal ambivalence feel uncomfortable? *Journal of Personality and Social Psychology*, *82*, 157–166. https://doi.org/10.1037/0022-3514.82.2.157

Noar, S. M. (2017). Transtheoretical Model and stages of change in health and risk messaging. In *Oxford Research Encyclopedia of Communication*. https://doi.org/10.1093/acrefore/9780190228613.013.324

Nordgren, L. F., van Harreveld, F., & van der Pligt, J. (2006). Ambivalence, discomfort, and motivated information processing. *Journal of Experimental Social Psychology*, *42*(2), 252–258. https://doi.org/10.1016/j.jesp.2005.04.004

O'Brien, K., Forrest, W., Lynott, D., & Daly, M. (2013). Racism, gun ownership and gun control: Biased attitudes in US Whites may influence policy decisions. *PLOS ONE*, *8*(10), e77552. https://doi.org/10.1371/journal.pone.0077552

Petrocelli, J. V. (2002). Processes and stages of change: Counseling with the Transtheoretical Model of Change. *Journal of Counseling & Development*, *80*(1), 22–30. https://doi.org/10.1002/j.1556-6678.2002.tb00162.x

Pierre, J. M. (2019). The psychology of guns: Risk, fear, and motivated reasoning. *Palgrave Communications*, *5*(1), Article 1. https://doi.org/10.1057/s41599-019-0373-z

Priester, J. R., & Petty, R. E. (1996). The gradual threshold model of ambivalence: Relating the positive and negative bases of attitudes to subjective ambivalence. *Journal of Personality and Social Psychology*, *71*(3), 431–449. https://doi.org/10.1037//0022-3514.71.3.431

Prochaska, J. O. (1994). Strong and weak principles for progressing from precontemplation to action on the basis of twelve problem behaviors. *Health Psychology: Official Journal of the Division of Health Psychology, American Psychological Association*, *13*(1), 47–51. https://doi.org/10.1037//0278-6133.13.1.47

Prochaska, J. O., & DiClemente, C. C. (1982). Transtheoretical therapy: Toward a more integrative model of change. *Psychotherapy: Theory, Research & Practice*, *19*, 276–288. https://doi.org/10.1037/h0088437

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist*, *47*, 1102–1114. https://doi.org/10.1037/0003-066X.47.9.1102

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1993). In search of how people change: Applications to addictive behaviors. *Journal of Addictions Nursing*, *5*(1), 2. https://doi.org/10.3109/10884609309149692

Prochaska, J. O., Norcross, J. C., & DiClemente, C. C. (2013). *Applying the stages of change*. 177–181. https://doi.org/10.1093/med:psych/9780199845491.003.0034

Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behavior change. *American Journal of Health Promotion: AJHP*, *12*(1), 38–48. https://doi.org/10.4278/0890-1171-12.1.38

Prochaska, J. O., Velicer, W. F., Rossi, J. S., Goldstein, M. G., Marcus, B. H., Rakowski, W., Fiore, C., Harlow, L. L., Redding, C. A., Rosenbloom, D., & Rossi, S. R. (1994). Stages of change and decisional balance for 12 problem behaviors. *Health Psychology*, *13*, 39–46. https://doi.org/10.1037/0278-6133.13.1.39

R Core Team. (2023). *R: A language and environment for statistical computing* [Computer software]. R Foundation for Statistical Computing. https://www.R-project.org/

Ram, N., & Grimm, K. J. (2009). Methods and Measures: Growth mixture modeling: A method for identifying differences in longitudinal change among unobserved groups. *International Journal of Behavioral Development*, *33*(6), 565–576. https://doi.org/10.1177/0165025409343765

Rhemtulla, M., Brosseau-Liard, P. É., & Savalei, V. (2012). When can categorical variables be treated as continuous? A comparison of robust continuous and categorical SEM estimation methods under suboptimal conditions. *Psychological Methods*, *17*(3), 354–373. https://doi.org/10.1037/a0029315

Riketta, M. (2000). Discriminative validation of numerical indices of attitude ambivalence. *Current Research in Social Psychology*, *5*, No Pagination Specified-No Pagination Specified.

Robitzsch, A. (2020). Why ordinal variables can (almost) always be treated as continuous variables: Clarifying assumptions of robust continuous and ordinal factor analysis estimation methods. *Frontiers in Education*, *5*. https://doi.org/10.3389/feduc.2020.589965

Rollnick, S., & Miller, W. R. (1995). What is motivational interviewing? *Behavioural and Cognitive Psychotherapy*, *23*(4), 325–334. https://doi.org/10.1017/S135246580001643X

Rosseel, Y., Jorgensen, T. D., Wilde, L. D., Oberski, D., Byrnes, J., Vanbrabant, L., Savalei, V., Merkle, E., Hallquist, M., Rhemtulla, M., Katsikatsou, M., Barendse, M., Rockwood, N., Scharf, F., Du, H., & Jamil, H. (2023). *lavaan: Latent Variable Analysis* (0.6-17) [Computer software]. https://cran.r-project.org/web/packages/lavaan/index.html

RStudio Team. (2020). *RStudio: Integrated Development Environment for R* [Computer software]. RStudio, PBC. http://www.rstudio.com/

Saad, L. (2020, November 13). What percentage of Americans own guns? *Gallup*. https://news.gallup.com/poll/264932/percentage-americans-own-guns.aspx

Santiago-Rivas, M., Velicer, W. F., Redding, C. A., Prochaska, J. O., & Paiva, A. L. (2012). Cluster subtypes within the precontemplation stage of change for sun protection behavior. *Psychology, Health & Medicine*, *17*(3), 311–322. https://doi.org/10.1080/13548506.2011.630401

Saris, W. E., & Aalberts, C. (2003). Different explanations for correlated disturbance terms in MTMM studies. *Structural Equation Modeling*, *10*(2), 193–221. https://doi.org/10.1207/S15328007SEM1002_2

Sarkin, J. A., Johnson, S. S., Prochaska, J. O., & Prochaska, J. M. (2001). Applying the transtheoretical model to regular moderate exercise in an overweight population: Validation of a stages of change measure. *Preventive Medicine*, *33*(5), 462–469. https://doi.org/10.1006/pmed.2001.0916

Sauerwein, M., & Theis, D. (2021). New ways of dealing with lacking measurement invariance. In A. Oude Groote Beverborg, T. Feldhoff, K. Maag Merki, & F. Radisch (Eds.), *Concept and design developments in school improvement research: Longitudinal, multilevel and mixed methods and their relevance for educational accountability* (pp. 63–82). Springer International Publishing. https://doi.org/10.1007/978-3-030-69345-9_5

Sawicki, V., Wegener, D. T., Clark, J. K., Fabrigar, L. R., Smith, S. M., & Durso, G. R. O. (2013). Feeling conflicted and seeking information: When ambivalence enhances and diminishes selective exposure to attitude-consistent information. *Personality and Social Psychology Bulletin*, *39*(6), 735–747. https://doi.org/10.1177/0146167213481388

Schell, T. L., Cefalu, M., Griffin, B. A., Smart, R., & Morral, A. R. (2020). Changes in firearm mortality following the implementation of state laws regulating firearm access and use. *Proceedings of the National Academy of Sciences*, *117*(26), 14906–14910. https://doi.org/10.1073/pnas.1921965117

Schildkraut, J., Carr, C. M., & Terranova, V. (2018). Armed and academic: Perceptions of college students on concealed carry on campus policies. *Journal of School Violence*. https://www.tandfonline.com/doi/abs/10.1080/15388220.2018.1449655

Schleimer, J. P., Pallin, R., Wintemute, G. J., Charbonneau, A., & Kravitz-Wirtz, N. (2020). Patterns of firearm ownership and opinions on firearm policies among adults in

California. *JAMA Network Open*, *3*(7), e2012096. https://doi.org/10.1001/jamanetworkopen.2020.12096

Schmitt, A., Malchow, B., Hasan, A., & Falkai, P. (2014). The impact of environmental factors in severe psychiatric disorders. *Frontiers in Neuroscience*, *8*, 19. https://doi.org/10.3389/fnins.2014.00019

Schnippel, K., Burd-Sharps, S., Miller, T. R., Lawrence, B. A., & Swedler, D. I. (2021). Nonfatal firearm injuries by intent in the United States: 2016–2018 hospital discharge records from the Healthcare Cost and Utilization Project. *Western Journal of Emergency Medicine: Integrating Emergency Care with Population Health*, *22*(3). https://doi.org/10.5811/westjem.2021.3.51925

Schoemann, A. M., & Jorgensen, T. D. (2021). Testing and interpreting latent variable interactions using the semTools package. *Psych*, *3*(3), Article 3. https://doi.org/10.3390/psych3030024

Schorr, G., Ulbricht, S., Schmidt, C. O., Baumeister, S. E., Rüge, J., Schumann, A., Rumpf, H.-J., John, U., & Meyer, C. (2008). Does precontemplation represent a homogeneous stage category? A latent class analysis on German smokers. *Journal of Consulting and Clinical Psychology*, *76*(5), 840–851. https://doi.org/10.1037/a0013037

Scott, W. A. (1966). Brief report: Measures of cognitive structure. *Multivariate Behavioral Research*, *1*, 391–395. https://doi.org/10.1207/s15327906mbr0103_9

Semenza, D. C., Daruwala, S., Brooks Stephens, J. R., & Anestis, M. D. (2024). Gun violence exposure and suicide among Black adults. *JAMA Network Open*, *7*(2), e2354953. https://doi.org/10.1001/jamanetworkopen.2023.54953

Siegel, M. (2022). *National Lawful Use of Guns Survey (NLUGS), [United States], 2019: Version 1* (Version v1) [dataset]. ICPSR - Interuniversity Consortium for Political and Social Research. https://doi.org/10.3886/ICPSR37834.V1

Şimşek, G. G., & Noyan, F. (2012). Structural equation modeling with ordinal variables: A large sample case study. *Quality & Quantity*, *46*(5), 1571–1581. https://doi.org/10.1007/s11135-011-9467-4

Sink, C. A., & Mvududu, N. H. (2010). Statistical power, sampling, and effect sizes: Three keys to research relevancy. *Counseling Outcome Research and Evaluation*, *1*(2), 1–18. https://doi.org/10.1177/2150137810373613

Skelley, G., & Fuong, H. (2022, June 9). Over 40 percent Of Americans now rate gun violence as a top issue. *FiveThirtyEight*. https://fivethirtyeight.com/features/over-40-percent-of-americans-now-rate-gun-violence-as-a-top-issue/

Smart, R., Morral, A. R., Ramchand, R., Charbonneau, A., Williams, J., Smucker, S., Cherney, S., & Xenakis, L. (2023). *The science of gun policy: A critical synthesis of research*

evidence on the effects of gun policies in the United States, third edition. RAND Corporation. https://www.rand.org/pubs/research_reports/RRA243-4.html

Sparks, P., Conner, M., James, R., Shepherd, R., & Povey, R. (2001). Ambivalence about health-related behaviours: An exploration in the domain of food choice. *British Journal of Health Psychology*, *6*, 53–68. https://doi.org/10.1348/135910701169052

Sparks, P., Harris, P. R., & Lockwood, N. (2004). Predictors and predictive effects of ambivalence. *British Journal of Social Psychology*, *43*(3), 371–383. https://doi.org/10.1348/0144666042037980

Spurk, D., Hirschi, A., Wang, M., Valero, D., & Kauffeld, S. (2020). Latent profile analysis: A review and "how to" guide of its application within vocational behavior research. *Journal of Vocational Behavior*, *120*, 103445. https://doi.org/10.1016/j.jvb.2020.103445

Steadman, H. J., Monahan, J., Pinals, D. A., Vesselinov, R., & Robbins, P. C. (2015). Gun violence and victimization of strangers by persons with a mental illness: Data from the MacArthur Violence Risk Assessment Study. *Psychiatric Services*, *66*(11), 1238–1241. https://doi.org/10.1176/appi.ps.201400512

Stroebe, W., Agostini, M., Kreienkamp, J., & Leander, N. P. (2022). When mass shootings fail to change minds about the causes of violence: How gun beliefs shape causal attributions. *Psychology of Violence*, No Pagination Specified-No Pagination Specified. https://doi.org/10.1037/vio0000431

Stroebe, W., Leander, N. P., & Kruglanski, A. W. (2017). Is it a dangerous world out there? The motivational bases of American gun ownership. *Personality and Social Psychology Bulletin*, *43*(8), 1071–1085. https://doi.org/10.1177/0146167217703952

Studdert, D. M., Zhang, Y., Rodden, J. A., Hyndman, R. J., & Wintemute, G. J. (2017). Handgun acquisitions in California after two mass shootings. *Annals of Internal Medicine*, *166*(10), 698–706. https://doi.org/10.7326/M16-1574

Swanson, J. W., McGinty, E. E., Fazel, S., & Mays, V. M. (2015). Mental illness and reduction of gun violence and suicide: Bringing epidemiologic research to policy. *Annals of Epidemiology*, *25*(5), 366–376. https://doi.org/10.1016/j.annepidem.2014.03.004

Swanson, J. W., Sampson, N. A., Petukhova, M. V., Zaslavsky, A. M., Appelbaum, P. S., Swartz, M. S., & Kessler, R. C. (2015). Guns, impulsive angry behavior, and mental disorders: Results from the National Comorbidity Survey Replication (NCS-R). *Behavioral Sciences & the Law*, *33*(2–3), 199–212. https://doi.org/10.1002/bsl.2172

Swanson, J. W., Swartz, M. S., Essock, S. M., Osher, F. C., Wagner, H. R., Goodman, L. A., Rosenberg, S. D., & Meador, K. G. (2002). The social–environmental context of violent behavior in persons treated for severe mental illness. *American Journal of Public Health*, *92*(9), 1523–1531. https://doi.org/10.2105/AJPH.92.9.1523

Tegnerowicz, J. (2018). “Maybe it was something wrong with me”: On the psychiatric pathologization of Black men. In *Inequality, crime, and health among African American males* (Vol. 20, pp. 73–94). Emerald Publishing Limited. https://doi.org/10.1108/S0195-744920180000020005

Teret, S. P., Webster, D. W., Vernick, J. S., Smith, T. W., Leff, D., Wintemute, G. J., Cook, P. J., Hawkins, D. F., Kellermann, A. L., Sorenson, S. B., & DeFrancesco, S. (1998). Support for new policies to regulate firearms—Results of two national surveys. *New England Journal of Medicine*, *339*(12), 813–818. https://doi.org/10.1056/NEJM199809173391206

Thompson, M. M., Zanna, M. P., & Griffin, D. W. (1995). Let’s not be indifferent about (attitudinal) ambivalence. In *Attitude strength: Antecedents and consequences* (pp. 361–386). Lawrence Erlbaum Associates, Inc.

van Dijk, W., Schatschneider, C., Al Otaiba, S., & Hart, S. A. (2022). Assessing measurement invariance across multiple groups: When is fit good enough? *Educational and Psychological Measurement*, *82*(3), 482–505. https://doi.org/10.1177/00131644211023567

Van Green, T. (2021, August 4). Wide differences on most gun policies between gun owners and non-owners, but also some agreement. *Pew Research Center*. https://www.pewresearch.org/short-reads/2021/08/04/wide-differences-on-most-gun-policies-between-gun-owners-and-non-owners-but-also-some-agreement/

van Harreveld, F., Nohlen, H. U., & Schneider, I. K. (2015). The ABC of ambivalence: Affective, behavioral, and cognitive consequences of attitudinal conflict. In J. M. Olson & M. P. Zanna (Eds.), *Advances in Experimental Social Psychology* (Vol. 52, pp. 285–324). Academic Press. https://doi.org/10.1016/bs.aesp.2015.01.002

Velicer, W. F., DiClemente, C. C., Prochaska, J. O., & Brandenburg, N. (1985). Decisional balance measure for assessing and predicting smoking status. *Journal of Personality and Social Psychology*, *48*, 1279–1289. https://doi.org/10.1037/0022-3514.48.5.1279

Velicer, W. F., Prochaska, J. O., Fava, J. L., Rossi, J. S., Redding, C. A., Laforge, R. G., & Robbins, M. L. (2000). Using the Transtheoretical Model for population-based approaches to health promotion and disease prevention. *Homeostasis in Health and Disease*, *40*(5), 174–195.

Walker Daniels, J., & Murphy, C. M. (1997). Stages and processes of change in batterers’ treatment. *Cognitive and Behavioral Practice*, *4*(1), 123–145. https://doi.org/10.1016/S1077-7229(97)80015-6

Ward, J. A., McGinty, E. E., Hudson, T., Stone, E. M., Barry, C. L., Webster, D. W., & Crifasi, C. K. (2022). Reimagining public safety: Public opinion on police reform and gun violence prevention by race and gun ownership in the United States. *Preventive Medicine*, *165*, 107180. https://doi.org/10.1016/j.ypmed.2022.107180

Ward, J. A., Uzzi, M., Hudson, T., Webster, D. W., & Crifasi, C. K. (2023). Differences in perceptions of gun-related safety by race and gun ownership in the United States. *The Journal of Law, Medicine & Ethics*, *51*(1), 14–31. https://doi.org/10.1017/jme.2023.38

Warner, T. D., & Thrash, C. R. (2020). A matter of degree? Fear, anxiety, and protective gun ownership in the United States. *Social Science Quarterly*, *101*(1), 285–308. https://doi.org/10.1111/ssqu.12735

Webb, T. L., & Sheeran, P. (2006). Does changing behavioral intentions engender behavior change? A meta-analysis of the experimental evidence. *Psychological Bulletin*, *132*(2), 249–268. https://doi.org/10.1037/0033-2909.132.2.249

West, R. (2005). Time for a change: Putting the transtheoretical (stages of change) model to rest. *Addiction*, *100*(8), 1036–1039. https://doi.org/10.1111/j.1360-0443.2005.01139.x

Weston, R., & Gore, P. A. (2006). A brief guide to structural equation modeling. *The Counseling Psychologist*, *34*(5), 719–751. https://doi.org/10.1177/0011000006286345

Wicker, A. W., & Pomazal, R. J. (1971). The relationship between attitudes and behavior as a function of specificity of attitude object and presence of a significant person during assessment conditions. *Representative Research in Social Psychology*, *2*(2), 26–31.

Wolfson, J. A., Teret, S. P., Azrael, D., & Miller, M. (2017). US public opinion on carrying firearms in public places. *American Journal of Public Health*, *107*(6), 929–937. https://doi.org/10.2105/AJPH.2017.303712

Wolpert, R., & Gimpel, J. (1998). Self-interest, symbolic politics, and public attitudes toward gun control. *Political Behavior*, *20*. https://doi.org/10.1023/A:1024814624070

Zatzick, D., Russo, J., Lord, S. P., Varley, C., Wang, J., Berliner, L., Jurkovich, G., Whiteside, L. K., O'Connor, S., & Rivara, F. P. (2014). Collaborative care intervention targeting violence risk behaviors, aubstance use, and posttraumatic stress and depressive symptoms in injured adolescents: A randomized clinical trial. *JAMA Pediatrics*, *168*(6), 532–539. https://doi.org/10.1001/jamapediatrics.2013.4784

Zuriaga, A., Kaplan, M. S., Choi, N. G., Hodkinson, A., Storman, D., Brudasca, N. I., Hirani, S. P., & Brini, S. (2021). Association of mental disorders with firearm suicides: A systematic review with meta-analyses of observational studies in the United States. *Journal of Affective Disorders*, *291*, 384–399. https://doi.org/10.1016/j.jad.2021.05.005

Zwick, W. R., & Velicer, W. F. (1986). Comparison of five rules for determining the number of components to retain. *Psychological Bulletin*, *99*(3), 432–442. https://doi.org/10.1037/0033-2909.99.3.432