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How Perceptions of Safety and Anxiety Affect Campus Carry

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HOW PERCEPTIONS OF SAFETY AND ANXIETY AFFECT CAMPUS CARRY

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Chapter I: Introduction

Mass shootings on college campuses do not happen frequently (Paez et al., 2021; Schildkraut & Elsass, 2016). However, when they do occur, such as the Virginia Tech shooting in 2007, they have led to policies to increase campus safety so that universities can be prepared for future threats (Hassett et al., 2020; Schildkraut et al., 2018a; Schildkraut et al., 2018b). A policy proposal that has gained traction is to allow individuals to "campus carry."

Campus carry is when individuals are allowed to carry a concealed firearm on a college campus (Jones & Horan, 2019; Ewing, 2017). Campus carry has been the source of much debate, with both support and opposition for this policy (Hassett et al., 2020; Kelling et al., 2021; Campus Safety, 2023) claiming that their side will make campuses safer. However, to understand the bigger picture of campus carry, it is important to know that this policy is not consistently legislated across the United States (Campus Safety, 2023). Currently, 11 states allow campus carry on their university grounds and 17 states prohibit campus carry. In the remaining 22 states, campus carry is determined independently by each college or university. Montana is one of the 22 states in which universities can create their own policies about firearms on campus (Campus Safety, 2023). With House Bill 102 (State of Montana Newsroom, 2021), the constitutional authority of the Board of Regents of the Montana University System was challenged in the courts regarding their ability to make decisions regarding campus carry. Ultimately, the Board of Regents maintained their jurisdiction to create their own policy regarding firearms on campus (KTVQ, 2021; Montana University System, 2021; Sakariassen, 2022). The University of Montana (UM) currently does not allow campus carry (University of Montana, n.d.).

Campus carry is continuously evolving statewide as house bills are introduced each legislative session with campus carry policies (Hassett et al., 2020). This is important because

both sides of the debate advocate for campus safety. The rationale behind the support of campus carry is that if potential shooters are aware that there are other individuals on campus with firearms, they will be deterred from following through with their plans (Kelling et al., 2021; Schildkraut et al., 2018a; Schildkraut, 2018b). If they are not deterred, then there will be individuals on campus who can protect themselves and others (Fox & DeLateur, 2014). In this way, proponents of campus carry believe they will provide needed security on campus that will lead to a decrease in crime (Kelling et al., 2021). Opponents of campus carry explain the result of this policy would be a less safe campus with increased potential for violent crime (Everytown for Gun Safety, 2022a).

Because both supporters and opponents of campus carry aim to increase campus safety, it is important to consider the concept of safety as a fundamental need with respect to the college population. Maslow (1943) explains that safety is a basic need that must be met before higher levels of cognition can occur. He states that that safety can be experienced when the environment is routinized, predictable, and organized. Despite their infrequency, mass shootings can disrupt an individual's perception of safety because they are unpredictable and happen in locations where routine often dominates, such as grocery stores, K-12 schools, and college campuses.

Nonetheless, research has indicated that the campus population generally perceives their school grounds as safe (McMahon-Howard et al., 2020; Satterfield & Wallace, 2020). However, the results from the literature are mixed regarding the effect that perceptions of safety have on an individual's support or opposition of campus carry. Participants who felt less safe tended to oppose campus carry (De Angelis et al., 2017; Nodeland & Saber, 2019; Satterfield & Wallace, 2020), as well as support campus carry (McMahon-Howard et al., 2020). The results of these studies are varied and indicate trends of both support and opposition for campus carry as being

dependent upon an individual's perceptions of safety. More research is needed to have a better understanding of how perceptions of safety might affect an individual's stance with respect to campus carry.

Anxiety might be a motivator behind support or opposition of campus carry policies. Anxiety has been defined as excessive worry over "anticipation of a future threat" (American Psychiatric Association, 2022, p. 215). A hallmark of generalized anxiety disorder is that danger is often attributed to situations where a threat does not actually exist (American Psychiatric Association, 2022; Lissek et al., 2014; Stein & Sareen, 2015). Although mass shootings are rare events (Fridel, 2021; Jonson, 2017; Paez et al., 2021; Schildkraut & Elsass, 2016), anxiety is frequently experienced by college students (American College Health Association, 2022a; American College Health Association, 2022b). If a student is excessively worried about their safety, it might affect their position regarding campus carry. However, with the exception of research by Kelling and colleagues (2021), there is limited research regarding the relationship between anxiety and support or opposition of campus carry amongst college students. Given the scarcity of literature on the relationship between anxiety and campus carry, more research is needed in this area.

Chapter II: Literature Review

Mass Shootings

All 50 states allow citizens to carry concealed firearms if they meet certain requirements (Campus Safety, 2023); however, schools have typically been considered "sensitive places" where firearms have been prohibited (*District of Columbia v. Heller*, 2008). Despite this special consideration for schools, mass shootings have occurred at educational institutions dating as far back as 1966 when a gunman killed 14 civilians and injured 31 others from the clock tower of the University of Texas (Somers & Phelps, 2018; "University of Texas Tower Shooting," 2022).

The Congressional Research Service defines mass shootings as "a multiple homicide incident in which four or more victims are murdered with firearms, within one event, and in one or more locations in close proximity" (Krouse & Richardson, 2015, p. ii). Mass shootings are rare occurrences and account for a minority of all the homicides that occur due to firearms in the United States (Everytown for Gun Safety, 2022b). However, these events are also increasing in frequency. The year 2022 was ranked as the second highest year of mass shootings since data has been collected on these events (USA Today, 2023). On college campuses, mass shootings are less common (Birnbaum, 2013; Fridel, 2021; Jonson, 2017; Paez et al., 2021; Spitzer, 2015.; Spitzer et al., 2006) and account for less than six percent of all mass shootings nationwide (Peterson & Densely, 2021). Yet when these events occur at institutions of higher education, such as the Virginia Tech shooting in 2007, they often result in the creation of policies with the intention to make campuses safer. One policy that frequently arises after a mass shooting on a college campus is to allow for campus carry.

Campus Carry

Campus carry grants individuals the ability to carry concealed firearms on university grounds. Campus carry has not always been considered a legal right at institutions of higher education. However, two prominent Supreme Court cases, *District of Columbia v. Heller* (2008) and *McDonald v. City of Chicago* (2010), extended the interpretation of the Second Amendment and laid the foundation for campus carry legislation (Birnbaum, 2013; Hernández, 2021; McMahon-Howard et al., 2020; Smith, 2012).

The Expansion of the Second Amendment

The Second Amendment states that "a well-regulated militia, being necessary to the security of a free state, the right of the people to keep and bear arms, shall not be infringed" (U.S. Const. amend. II., 1791). Prior to 2008, the legal agreement regarding the Second Amendment was that it preserved the power of the states to maintain armed militias (*McDonald v. City of Chicago*, 2010; Birnbaum, 2013). However, in *District of Columbia v. Heller* (2008), the Supreme Court explained that the Second Amendment offered federal protection not only for well-regulated militias, but also for individuals if firearms were stored in their homes for self-defense (Lewis, 2017). Writing for the majority, Justice Scalia included caveats in his decision when he explained that the "Second Amendment right is not unlimited" and that established laws that "[forbid] the carrying of firearms in sensitive places such as schools" should be maintained (*District of Columbia v. Heller,* 2008). These caveats meant that there were limitations to the Second Amendment and that schools were still considered locations where firearms should be prohibited. Despite these conditions, this federal ruling, that individuals could own firearms for self-defense, paved the way for a second Supreme Court case that ultimately legislated campus carry policies.

The second Supreme Court case that facilitated campus carry legislation was *McDonald v. City of Chicago* (2010). In this case, Justice Alito wrote for the majority and explained that the right to bear arms for self-defense was not only federally protected, but also extended to the states under both the Second Amendment and Due Process Clause of the Fourteenth Amendment. The Due Process Clause of the Fourteenth Amendment specifies that no state shall "deprive any person of life, liberty, or property, without due process of law" (U.S. Const. amend. XIV, 1868). The Due Process Clause was interpreted in relation to the Second Amendment to convey that federal, state, and local governments could not infringe upon an individual's right to bear arms for self-protection. *McDonald* (2010), therefore, gave individual states permission to extend concealed firearms on their college campuses (Smith, 2012). In other words, the door was opened for states to determine their own campus carry policies. Consequently, campus carry is not consistently legislated across the United States (Giffords Law Center, 2023; Campus Safety, 2023).

During the Supreme Court's 2022 session, Justice Thomas wrote for the majority in the case *New York State Rifle & Pistol Association v. Bruen* (2022) and extended the landscape of campus carry by federally protecting an individual's right to carry firearms outside of the home for self-defense. Previously, the law in New York stated that individuals needed to prove that they have a reasonable cause for obtaining a license to carry a firearm in public (Liptak, 2021). However, in 2022, the Supreme Court ruled that requiring citizens to demonstrate a need for self-defense obstructs their Second and Fourteenth Amendment rights. In his concurring opinion in *Bruen* (2022), Justice Kavanaugh reiterated a portion of the principal opinion put forth in *McDonald* that schools and government buildings are considered sensitive places maintaining some limitations to the Second Amendment. This ruling is important because it declared that

places where people congregate in large numbers, such as New York City, must permit citizens to exercise their Second and Fourteenth Amendment rights to bear arms.

Heller (2008) provided citizens with the federal right to have firearms in their home (Somers & Phelps, 2018), *McDonald* (2010) put the power in the hands of the states to regulate firearm policies, and *Bruen* (2022) extended the ability of citizens to carry firearms outside the home for self-defense without probable cause. Currently, states have the ability to create their own policies regarding campus carry. However, it is yet to be determined how *Bruen* (2022) will be interpreted in future cases regarding firearms on campus.

States Determine Campus Carry Policies

To understand the bigger picture of campus carry, it is important to know that this policy is not consistently legislated across the United States (Campus Safety, 2023). Furthermore, because each state has its own unique makeup of demographics, it is difficult to categorize states that prohibit or allow campus carry. Complicating this situation is the fact that campus carry is continuously evolving statewide as house bills are introduced each legislative session with campus carry policies (Hassett et al., 2020). Nonetheless, to have a broad perspective of campus carry, it is meaningful to explore the differences amongst states and how they legislate campus carry policies.

States That Allow Campus Carry

As of 2022, 11 states allow campus carry on their premises: Arkansas, Colorado, Georgia, Idaho, Kansas, Mississippi, Oregon, Tennessee, Texas, Utah and Wisconsin (Giffords Law Center, 2023 Campus Carry, 2023). The policies are nuanced across the spectrum of these states. For example, in Oregon, campus carry is legal, but individual schools can prohibit firearms on campus (Giffords Law Center, 2023). In Wisconsin, campus carry is permissible,

unless there is a notice on a building that states that firearms are prohibited at that location. Tennessee, on the other hand, allows campus carry for faculty and staff who have permits, but students are not allowed to carry concealed firearms (Giffords Law Center, 2023).

According to a Pew Research survey in 2021, many individuals who support expanded gun access could be found in rural areas, whereas advocates for gun control typically live in urban areas (Schaeffer, n.d.). In line with this survey, the 11 states that currently allow campus carry tend to be less densely populated (e.g., Idaho, Kansas, and Oregon; United States Census, 2020). However, these states represent a complex tapestry of demographics ranging from conservative to liberal, as well as from high to low on a Gun Friendly Index (GFI) that rates states according to their gun laws and gun culture (AZ Defenders, 2022; "Red States and Blue States," 2022; United States Census, 2020). Overall, states that allow campus carry tend to be less densely populated and have fewer restrictive gun laws than states that prohibit campus carry.

States That Prohibit Campus Carry

The 17 states that prohibit campus carry are: California, Florida, Illinois, Louisiana, Massachusetts, Michigan, Missouri, Nebraska, Nevada, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, South Carolina and Wyoming (Campus Safety, 2023). More than half of the states that prohibit campus carry tend to be more densely populated than the states that allow campus carry (e.g., Massachusetts and New Jersey; United States Census, 2020). These states are evenly split according to conservative and liberal leanings and range in ratings across the Gun Friendly Index. (AZ Defenders, 2022). Apart from population density, it is difficult to make broad generalizations when attempting to categorize which states prohibit campus carry.

States Where Colleges or Universities Determine Campus Carry

The remaining 22 states allow their institutions of higher education to create their own policies regarding campus carry. These states are: Alabama, Alaska, Arizona, Connecticut, Delaware, Hawaii, Indiana, Iowa, Kentucky, Maine, Maryland, Minnesota, Montana, New Hampshire, North Dakota, Pennsylvania, Rhode Island, South Dakota, Vermont, Virginia, Washington and West Virginia (Campus Safety, 2023). Similar to the states that prohibit campus carry, it is difficult to classify the states that grant colleges and universities the authority to write their campus carry policies. For example, these states range in their population density (United States Census, 2020) and were nearly split in their conservative and liberal leanings in the 2021 Senate elections ("Red States and Blue States," 2022). Moreover, these states also range in rankings across the Gun Friendly Index. (AZ Defenders, 2022). Again, due to the diversity and range in population, political leanings, and gun friendliness, it is difficult to classify the states that grant their colleges and universities the ability to create their own campus carry policies.

Montana and House Bill 102

Montana is one of the states that allows their university system to determine their campus carry policy. This right was challenged in February 2021 when Governor Gianforte signed House Bill 102 (H.B. 102, 2021), which aimed to extend concealed carry of firearms without a permit to areas that were previously prohibited, such as college campuses (Governor's Office, 2021; H.B. 102, 2021). In this bill, it was stated that the Montana University System and Board of Regents would no longer have the authority to regulate their firearm policy because these restrictions infringed upon an individual's constitutional rights (H.B.102, 2021). The purpose section of H.B. 102 explained the underlying reasoning behind this policy, which is that criminals can be armed yet law-abiding citizens are unable to carry firearms for self-protection which leaves them

vulnerable in crisis situations (H.B. 102, 2021). Before signing the bill, Gianforte invoked the same sentiment behind the Supreme Court's *Heller* (2008) ruling when he explained that the ability to carry a firearm is not only protected under the Second Amendment, but it is also necessary for self-defense (State of Montana Newsroom, 2021).

The Montana Constitution gives the Board of Regents, which is an independent body of citizens with administrative authority, the "full power, responsibility, and authority to supervise, coordinate, manage and control the Montana university system" (M.T. Cons. art. X, § 9, 2021). In response to H.B. 102, the Board of Regents sought judicial review to determine if this bill breached their constitutional rights (Montana University System, 2021). In December of 2021, Judge McMahon of the First Judicial District ruled in favor of the Board of Regents. The judge explained that H.B. 102 was indeed a violation of the Board of Regents constitutional rights (KTVQ, 2021; Sakariassen, 2021) and maintained that the Board of Regents can continue to make decisions regarding their firearm policy. The judge also issued a permanent injunction on the state from enforcing any provisions of H.B. 102 on the Montana University System (KTVQ, 2021; Sakariassen, 2021). In response, Montana's Attorney General's office filed for an appeal. Ultimately, the Montana Supreme Court ruled in favor of the Board of Regents and allowed them to maintain their sovereignty in determining campus carry policies (Sakariassen, 2022). The University of Montana currently does not allow campus carry (University of Montana, n.d.).

Proponents and Opponents of Campus Carry

To contextualize campus carry legislation, it is important to understand the rationale behind the support and opposition of this policy. The overarching theme from both sides is to increase safety. Proponents claim that more guns on campus serve as a protective factor because

this policy will deter future criminals from committing violent crimes. Opponents allege campus carry increases risk because more guns lead to more violence.

Proponents of Campus Carry

Proponents of campus carry base most of their arguments in favor of this policy on their right to bear arms for self-defense as given by the Second Amendment (Heiskanen, 2021). Students for Concealed Carry (SCCC) is one of the largest non-partisan, grassroots organizations composed of thousands of college students, faculty members, staff, parents, and citizens who are in favor of the campus carry policy (Students for Concealed Carry, n.d.a). SCCC explained that individuals at institutions of higher education should not be denied their Second Amendment rights simply because they are on university grounds. Furthermore, they justify that the Second Amendment entitles them to carry firearms for self-defense (Smith, 2012; Students for Concealed Carry, 2009). Proponents of this policy point to the contradiction that criminals can enter university grounds with weapons, yet law-abiding citizens must remain unarmed and are therefore left vulnerable (Fox & DeLateur, 2014; Lewis, 2017). By allowing the campus population to carry firearms, they can protect themselves should a violent attack occur (Kopel, 2009). Supporters of this policy emphasize that campus police are often ineffective because they are already spread too thin (De Angelis et al., 2017). They often do not arrive on the scene until many unarmed individuals are already killed or injured (Kopel, 2009). Therefore, having individuals on campus who are trained and licensed to carry handguns will provide needed reinforcement (Students for Concealed Carry, n.d.b). Supporters rationalize that if active shooters are met with armed resistance prior to police arrival, the shooter will be deterred and fewer fatalities may occur (Kopel, 2009). Overall, proponents of campus carry maintain that gun-free zones on college campuses attract criminals because they know they will not face an armed

counterattack (Fox & DeLateur, 2014). Therefore, campus carry policies could serve as both a deterrent to criminals and a needed safety measure should a violent crime occur (De Angelis et al., 2017; Kopel, 2009; Lewis, 2017; Students for Concealed Carry, n.d.b; Sulkowski & Lazarus, 2011).

Opponents of Campus Carry

Opponents of campus carry emphasize that college campuses are already safe and that more guns lead to more violence (Everytown for Gun Safety, 2022a). They argue that undergraduate students are at the age of legally acquiring firearms (around 19-21 years of age), when "age-specific homicide offending peaks" (Webster et al., 2016). Additionally, most undergraduate college students are in the developmental period known as either late adolescence or early adulthood. These stages of development are marked by risky behavior and the continuation of brain maturation (Price et al., 2014; Substance Abuse and Mental Health Services Administration, 2019, Webster et al., 2016). During this time, there can be increased impulsivity, along with difficulties reasoning and regulating emotions and behaviors (Webster et al., 2016). Mental illness, like depression, can also surface during late adolescence and early adulthood. Additionally, many undergraduate students experience stress when adapting to college life and many also consume alcohol (American College Health Association, 2022a), which can result in impaired judgment. Given the cross section of mental illness, stress, drinking, and risky behavior that is prevalent in this population, opponents of campus carry explain that adding firearms to this environment may be lethal (Kelling et al., 2021).

In the spring of 2022, three percent of undergraduates who drank alcohol in the past year seriously considered attempting suicide (American College Health Association, 2022a). Opponents of campus carry argue that having access to firearms on campus increases the

opportunity for suicide completion (Kelling et al., 2021; Verrecchia & Hendrix, 2018; Webster et al., 2016). It should be noted that SCCC contest that many suicides happen in the home and most students live off-campus (Students for Concealed Carry, n.d.b). Therefore, they state that campus carry legislation would have little impact on the total number of suicides by students on campus grounds.

Opponents of campus carry express that the presence of guns could not only lead to fatalities, but could also increase the potential for injury (Webster et al., 2016). For example, a professor in Idaho and students in Utah and Georgia accidentally shot themselves after campus carry legislation was passed in their states (Everytown for Gun Safety, 2022a). Opponents have suggested that these injuries could be avoided if guns were not allowed on campus. SCCC countered that in all these incidents, the firearms were unholstered. SCCC therefore stressed that licensed firearm owners should carefully exercise safety measures when handling an unholstered weapon (Students for Concealed Carry, n.d.b).

Opponents of this policy also explain that armed individuals on campus have been mostly ineffective at stopping active shooters. For example, of the 101 total active shootings in 2020 and 2021, only six of them ended when an armed citizen killed the shooter (Federal Bureau of Investigation et al., 2022). More specifically, opponents cite the Umpqua Community College shooting in Oregon in 2015 (Lewis, 2017; Team Trace, 2015). During this shooting, there was an armed individual on campus who had been in the military and therefore had firearm training in stressful situations. However, he decided not to intervene out of concern that law enforcement might mistake him for the active shooter. Opponents of campus carry often point out that armed civilians can add confusion in emergency situations (Birnbaum, 2013) and armed citizens do not have the same type of training as law enforcement and veterans (Sulkowski & Lazarus, 2011).

They explain that even highly trained professionals can miss their target in crisis situations (Webster et al., 2016). Therefore, armed citizens who do not have the same depth of training might unintentionally shoot unarmed civilians (Fox & DeLateur, 2014) because they could not be expected to act with precision under highly pressured circumstances. The SCCC counters that firearm training is a small portion of law enforcement preparation and that the vast majority of their training consists of policies and procedures in their specific field (Students for Concealed Carry, n.d.b). The SCCC argues that individuals who conceal carry do not need comprehensive law enforcement training, but only need to be competent in self-defense. They justify that self-defense training can occur over a few hours. Furthermore, regarding any confusion that might ensue from armed citizens, the SCCC asserts that law enforcement have endured extensive training to differentiate between active shooters and armed citizens (Students for Concealed Carry, n.d.b). Additionally, the SCCC highlights that armed citizens carry firearms for the main purpose of self-defense. Therefore, they would not cause confusion because they would not be actively pursuing the shooter or interfering with tactical situations.

Opponents of campus carry also cite their First Amendment rights of academic freedom and state that firearms on campus would have a "chilling effect" on their freedom of speech (Lewis, 2017, p. 2141). They specify that expression in the classroom could be strained because professors could not teach freely, and students could not learn freely with potential firearms in the classroom. Opponents suggest that the freedom to express themselves would also be constrained outside of the classroom and would alter relationships amongst students with their professors, professors with their colleagues, and professors with administrators (Lewis, 2017). Some professors also expressed safety concerns about holding office hours and discussing failing grades with an armed student (Fernandez & Montgomery, 2015). A university official at a

Kansas campus explained that campus carry could even affect how professors grade their students. This official said the ongoing joke on campus was that all students were going to have a 4.0 GPA due to instructors' fear of confrontation with students who might be carrying a firearm (Reimal et al., 2019). SCCC countered that professors should focus their concerns on students who are carrying firearms illegally and not on law-abiding students who campus carry (Students for Concealed Carry, n.d.b).

An Increasing Trend of Support for Campus Carry

Ultimately, students, faculty, and staff express that they do not feel comfortable with campus carry (Hassett et al., 2020; Satterfield & Wallace, 2020). However, over time it appears that the landscape is changing and more of the campus population is expressing support for campus carry policies. In 2012, Cavanaugh and colleagues surveyed undergraduate students in Washington and Texas regarding their comfort levels regarding campus carry where 0% represented "not at all comfortable" and 100% represented "very comfortable" (p. 2246). Cavanaugh and colleagues (2012) found that only 8 to 10% of the students who were sampled in Washington and Texas respectively were "very comfortable" with having guns on campus (p. 2246). Cavanaugh and colleagues (2012) only reported extreme positions on this issue and did not report moderate or neutral data. In 2018, Verrecchia and Hendrix surveyed undergraduate students in two Mid-Atlantic colleges. Unlike Cavanaugh and colleagues (2012) who questioned participants regarding their comfort level with campus carry, Verrecchia and Hendrix (2018) took a different approach. They asked participants if individuals on college campuses should be allowed to carry firearms. Responses were coded on a Likert scale where (1) was "strongly disagree" and (5) was "strongly agree" (p. 70). To create a binary variable, neutral responses were removed and responses of disagree and strongly disagree as well as agree and strongly

agree were combined. Verrecchia and Hendrix (2018) found that, 47.5% participants agreed with the right to carry firearms on campus. Nodeland and Saber (2019) researched support for campus carry amongst participants at the University of North Texas. They utilized a similar approach to Verrecchia and Hendrix (2018) where support was assessed on a Likert scale (1) was "very supportive" and (5) was "not supportive at all" (p.161). The responses were dichotomized to reflect the binary nature of support and opposition. Nodeland and Saber (2019) found that 46.0% of students at the University of North Texas supported campus carry policies. In 2021, Hayes and colleagues (2021) assessed undergraduate and graduate students' support for campus carry at a southeastern university. Hayes and colleagues (2021) also utilized a Likert scale where (1) was "strongly agree" and (4) was "strongly disagree" (p. 105). Then, they dichotomized the responses. They reported that 57.9% of participants agreed with campus carry. Overall, most studies on campus carry utilize regional samples. The increasing support for campus carry might be explained by the variation in regional, political, and demographic factors of the sampled populations. However, in a rare nation-wide study by Satterfield and Wallace (2020), it was found that only 22.3% of the participants supported campus carry, 55.4% opposed campus carry, and 22.3% were unsure of their position. Although the continuous and regional data collected by Cavanaugh and colleagues in 2012 cannot be directly compared to the three-level categorical and national data from Satterfield and Wallace in 2020, an implicit comparison is worth noting. Compared to the lower rate of comfort with campus carry (8 to 10%) in Cavanaugh and colleagues' 2012 study, it is possible that the increase of support (23%) in Satterfield and Wallace's 2020 national study might reflect the upward trend of support for campus carry in the country at large.

Predictors of Support and Opposition of Campus Carry

To examine the changing landscape of support, it is important to understand the predictors of those who support and oppose campus carry. The literature has primarily focused on individuals who favor this policy. In a systematic review of the literature, Hassett and colleagues (2020) noted that the following predictors indicated higher support for campus carry: individuals who reported being male, conservative or Republican, individuals who feared being victimized on campus or who had previously been a victim of crime, and individuals who owned guns. Hayes and colleagues (2021) looked at predictors of opposition of campus carry. They found that undergraduate and graduate students who identified as female, Latinx, Black, and voted for the 2016 Democratic nominee were more likely to oppose campus carry policies. Furthermore, participants who spent more time with friends in the month prior to being surveyed and who spent more time on campus were also factors related to opposition to campus carry.

Although gun ownership can be a predictor of campus carry support, Shepperd and colleagues (2018b) illustrated a distinction between those who owned guns for protection and those who owned guns for non-protection purposes (such as sport or collector's items). Amongst faculty, students, and staff at a southeastern university, more than 60% of participants who owned guns for sport or collection purposes expressed that campus carry would be harmful to open discourse and the overall classroom environment. Shepperd and colleagues (2018b) also found that although the majority of participants who owned guns for protection reasons agreed that the academic environment would be altered by guns on campus, they continued to support campus carry policies. Hayes and colleagues (2021) reported support for campus carry amongst undergraduate and graduate students at a southeastern university who presumed that they were responsible for their own safety. Students who discussed safety preparedness with their friends

were also in favor of campus carry policies. These findings may indicate that self-protection and being responsible for one's own safety might be important predictors for support of campus carry. Although prior research has pointed to the differences between those who support or oppose campus carry (Hassett et al., 2020; Hayes et al., 2021; Shepperd et al., 2018a; Thompson et al., 2013), since the goal on both sides of the debate is to maintain campus safety, it is important to explore safety as a fundamental need.

The Basic Need of Safety

According to Maslow (1943), safety is one of the fundamental needs that must be met before higher levels of functioning, such as learning, can occur. Maslow explains that for a child to feel safe, they must experience an "orderly, predictable, organized world, which he can count on, and in which unexpected, unmanageable or other dangerous things do not happen, and in which, in any case, he has all-powerful parents who protect and shield him from harm" (1943, p. 378). This explanation emphasizes why mass shootings, despite their infrequency, can rattle how an individual might perceive the safety of their campus environment. This is because mass shootings disrupt the routine of daily life in places that are typically predictable, such as grocery stores, movie theaters, concerts, K-12 schools, and college campuses. When mass shootings occur, people who usually provide protection, such as parents or law enforcement, are often not available to respond promptly. Subsequently, the "all-powerful" (Maslow, 1943, p. 378) protection that should be in place for one to feel safe is disrupted.

College Campuses and Safety

College campuses are typically not a hub for violent crime. They are generally safer than the nation at large (Birnbaum, 2013; Everytown for Gun Safety, 2022a; Gius, 2019). The FBI defines violent crimes as "murder and nonnegligent manslaughter, rape, robbery, and aggravated

assault" (Federal Bureau of Investigation, 2019), with most violent crimes occurring off campus (National Center for Education Statistics, 2023). Based on the most recent statistics available, in 2020, a campus attendee (i.e., students, faculty or staff) had a .05% chance of experiencing a violent crime on campus (U.S. Department of Education, n.d.; National Center for Education Statistics, n.d.a), whereas in 2019, an individual in the United States had a 0.37% chance of experiencing a violent crime (Federal Bureau of Investigation, 2019; United States Census Bureau; 2019). Furthermore, the most frequently reported crime on college campuses is not gun violence, but forcible sex offenses, which made up 43% of reported crimes on college campuses in 2019 (National Center for Education Statistics, 2022). In the past decade, there have been four mass shootings on college campuses that resulted in 27 deaths and 27 injuries (The Violence Project, 2021). With approximately 20 million students attending college each year (National Center for Education Statistics, n.d.b.), this means a college attendee had a 0.000014% chance of a fatal firearm attack while on campus from a mass shooting. College campuses are generally safe. However, to understand the rationale behind the support and opposition of campus carry, it is also important to recognize the paradox behind the simultaneous safety and vulnerability of college campuses (Somers et al., 2020; Sulkowski & Lazarus, 2011).

Universities are often "porous environment[s]" (Price et al., 2014, p. 467), with numerous entry and exit points that are open to the public (Sulkowski & Lazarus, 2011). Furthermore, security procedures are often absent for entry to gyms, lecture halls, libraries, or student unions. This can increase the vulnerability of students, faculty, and staff who are often densely populated in lecture halls and classrooms. Although mass shootings are infrequent on college campuses, these locations are easily penetrable to violent attacks. Given that fear of victimization on campus and the need for self-protection are predictors of support for campus carry (Hassett et al.,

2020), whether an individual perceives their campus as safe might impact their stance on this policy.

Perceptions of Safety

It is important to distinguish safety from an individual's perception of safety. This is because despite how harmless a situation might be, if a person appraises their environment as dangerous, this can affect their desire to protect themselves. Perception of safety has been defined as "how safe people perceive the immediate physical environment by its appearance, regardless of any victimization experience" (Zhang et al., 2021, p. 2). Maslow indicated that "a safe man no longer feels endangered" (1943, p. 379). In other words, if an individual does not appraise a situation as dangerous, then their basic need of safety has been met and they have the potential to access their higher cognition. Accordingly, how a college student perceives their environment could affect their ability to function in an academic environment.

Perceptions of Safety and Campus Carry

Supporters of campus carry feel safe when they are allowed to carry a gun, but vulnerable when they do not have a means of self-protection (Satterfield & Wallace, 2020; Shepperd et al., 2018b). Opponents of campus carry feel safe when firearms are not in their environment, but threatened in the company of these weapons. As illustrated previously, both sides of this policy rationalize their position through the language of safety.

In line with recent data that college campuses are generally safe locations (Federal Bureau of Investigation, 2019; U.S. Department of Education, n.d.), research shows that the campus population generally feels safe while on school grounds (McMahon-Howard et al., 2020; Satterfield & Wallace, 2020). In the spring of 2021 and 2022, college students reported feeling very safe on campus during the day. For example, approximately 75% of undergraduates and

graduate students nationwide reported feeling safe in 2022 (American College Health Association, 2022a; American College Health Association 2022b), and approximately 79% of undergraduate and graduate students at the University of Montana reported feeling safe in 2021 (American College Health Association, 2021). However, the results are mixed regarding the influence that perceptions of safety have on an individual's support or opposition of campus carry.

There have been a number of studies that have explored perceptions of safety in regard to campus carry either before or after campus carry legislation was enacted. At the University of North Texas, Nodeland and Saber (2019) reported that participants who felt less safe on campus tended to oppose campus carry. On the other hand, McMahon-Howard and colleagues (2020) demonstrated that safety concerns were associated with an increase in support of campus carry at a large public university in Georgia. In a rare nationwide study, Satterfield and Wallace (2020) hypothesized that low perceptions of safety would be indicative of support of campus carry, but their quantitative data did not support this hypothesis. However, their qualitative data revealed that safety was a primary theme for both support and opposition of campus carry in extreme situations such as mass shootings. Satterfield and Wallace (2020) explained that those who supported campus carry viewed the policy as a protective factor and those who opposed campus carry regarded the policy as a risk factor.

In line with Satterfield and Wallace's (2020) interpretation that campus carry can be viewed as a protective factor, when individuals perceive their environment as unsafe due to lack of confidence in campus law enforcement, they might be inclined to find other measures to ensure their safety. According to De Angelis and colleagues (2017), lack of confidence in campus police and the need for self-protection were both associated with support of campus

carry. Similarly, McMahon-Howard and colleagues (2020) found that an absence of confidence in campus law enforcement significantly increased support for campus carry. These findings are in alignment with the importance of self-defense amongst supporters of campus carry. In other words, if police are unable to offer needed protection, then the environment might be perceived as generally unsafe and therefore increase support for campus carry.

The research from Shepperd and colleagues (2018b) demonstrated that the motive behind owning a gun can influence an individual's perception of safety and their stance on campus carry. In their study, individuals who owned guns for self-protection generally felt less safe on campus and believed that campus violence would decrease due to campus carry policies. These individuals also reported that feelings of safety would increase if they could carry their firearms on campus. Non-protection gun owners and non-gun owners contradicted these findings. Most telling, however, was how participants predicted campus carry policies would affect their perceptions of safety. Less than one quarter of self-protection gun owners predicted they would feel less safe if campus carry policies were enacted, yet more than one half of non-protection gun owners and non-owners predicted feeling less safe if campus carry policies went into effect. Shepperd and colleagues (2018b) consequently suggested that campus carry policies would have a greater effect on the deterioration of perceptions of safety amongst non-protection gun owners and non-owners than those who own guns for self-protection.

The results are mixed regarding perceptions of safety and campus carry. Both support and opposition of campus carry were related to feeling less safe on campus (De Angelis et al., 2017; McMahon-Howard et al., 2020; Nodeland & Saber, 2019; Satterfield & Wallace, 2020). However, lack of confidence in campus police and the need for self-protection were related to support for campus carry (De Angelis et al., 2017; Shepperd et al., 2018b). Due to these mixed

results, more research is needed regarding how perceptions of safety impact support or opposition of campus carry amongst the campus population. Although more nationwide samples are needed, it is also meaningful to continue to explore regional samples due to the evolving nature of this policy at a statewide level. This is particularly salient in Montana because of the recent litigation of H.B. 102.

Anxiety

Anxiety has been defined as excessive worry over "anticipation of a future threat" (American Psychiatric Association, 2022, p. 215). It is a physiological response that corresponds to an individual's appraisal of the threat at hand (Beck et al., 1985). According to Beck and colleagues (1985), anxiety is designed to diminish the danger an individual is experiencing. A hallmark of generalized anxiety disorder is that danger is often attributed to situations where a threat does not actually exist (American Psychiatric Association, 2022; Lissek et al., 2014; Stein & Sareen, 2015). Beck and colleagues (1985) explain that when the danger is misperceived or exaggerated, stopping the threat is difficult because the source of anxiety results from a misinterpretation of actual events. In other words, it is difficult to alleviate a danger that might not exist. A person can therefore be left feeling vulnerable if they are unable to alleviate their anxiety. Beck and colleagues (1985) define vulnerability as "a person's perception of himself as subject to internal or external dangers over which his control is lacking or is insufficient to afford him a sense of safety" (p. 67). Accordingly, when an individual experiences anxiety and feels powerless to prevent danger, their perception of safety can be diminished. In this way, the relationship of anxiety and perceptions of safety can be operationalized, since higher levels of anxiety can lead to a decreased sense of safety.

Anxiety and College Students

Anxiety is frequently experienced by college students (American College Health Association, 2022a; American College Health Association, 2022b). In the spring of 2022, more than a third of college students (i.e., 34.9% of undergraduate students and 33.1% of graduate students) in the United States reported that they had been diagnosed with anxiety at some point in their lives (American College Health Association, 2022a; American College Health Association, 2022b). At the University of Montana, as reported in spring of 2021, the levels were slightly higher, with 38.7% of undergraduate and graduate students reporting that they had been diagnosed with an anxiety disorder at some point in their lives (American College Health Association, 2021). Poignantly, in the spring of 2021 and 2022, approximately 30 – 40% of college students nationwide and at the University of Montana reported that anxiety is one of the major barriers to their academic performance (American College Health Association, 2022a, American College Health Association, 2022b, American College Health Association, 2021). Students might have been particularly anxious during this time as it was marked by COVID isolation and precautions associated with the pandemic. Notwithstanding the pandemic, students in college experience stressors that could increase their anxiety, such as transitioning to a new environment, social pressures of college life, and an increased academic workload (Bamber & Schneider, 2016). Many college students are experiencing life outside of the familiarity and safety of their hometown for the first time. Away from home, and with the increase in risky behavior that is often a hallmark of the period of emerging adulthood (Webster et al., 2016), this could leave some students concerned about their safety. Anxiety is therefore a pertinent issue. If an individual is anxious about their safety, it might influence their support or opposition of campus carry.

Anxiety and Campus Carry

There are few studies that have explored the relationship between anxiety and campus carry. The studies that do exist focus on attitudes of college students either before or after campus carry went into effect (Beggan, 2019; Hernández, 2021; Kelling et al., 2021; Reimal et al., 2019; Somers & Phelps, 2018). Most of these studies took place in Texas and results show that participants expected to experience an increase in anxiety once campus carry was implemented.

Kelling and colleagues (2021) produced one of the only studies to date that has specifically explored the quantitative relationship between support or opposition of campus carry and personal characteristics such as anxiety. Their data illustrated that the majority of participants who either strongly supported or strongly opposed campus carry reported no anxiety (i.e., 260 out of 369 or 70.5%). However, amongst these individuals who did report some level (mild, moderate, or severe) of anxiety (i.e., 218), the majority were "against" or "very against" campus carry policies (i.e., 119 out of 218 or 54.6%; Kelling et al., 2021, p. 13). Although Kelling and colleagues (2021) did not find a relationship between "feelings of safety on campus due to anxiety," they did find that gun owners reported less anxiety than non-gun owners (p. 11). They hypothesized that gun owners might experience more agency due to their ability to protect themselves in threatening situations, whereas non-gun owners might experience more anxiety due to a lack of control when in danger.

There is limited research regarding how anxiety might influence an individual's position on campus carry, yet this topic is relevant. Although mass shootings are rare events (Paez et al., 2021; Schildkraut & Elsass, 2016), they can be especially distressing due to their unpredictability (Fox & DeLateur, 2014). This unpredictability might contribute to an increase in anxiety for

already anxious individuals, especially those who are non-gun owners. Furthermore, anxiety is frequently experienced by college students (American College Health Association, 2022a; American College Health Association, 2022b). Therefore, it is worthwhile to investigate whether anxiety contributes to an individual's position on campus carry.

Rationale for Current Study

For students to be able to effectively learn, their basic need of safety must first be met (Maslow, 1943). Although campus populations typically feel safe on university grounds (McMahon-Howard et al., 2020; Satterfield & Wallace, 2020), the unpredictability of mass shootings can disrupt an individual's perception of safety (Fox & DeLateur, 2014). Campus carry has become a popular policy in response to shootings at institutions of higher education. Supporters and opponents of this policy have the common goal of campus safety.

Limited research has focused on environmental factors, such as perceptions of safety on campus, and how those perceptions might influence support of campus carry (Hassett et al., 2020). Feeling less safe on campus has contributed to both opposition (De Angelis et al., 2017; Nodeland & Saber, 2019; Satterfield & Wallace, 2020) and support of campus carry (McMahon-Howard et al., 2020; Satterfield & Wallace, 2020). In two studies, self-protection was associated with support for campus carry, especially when individuals experience a lack of confidence in campus law enforcement (De Angelis et al., 2017; McMahon-Howard et al., 2020). Past research has shown varied results regarding perceptions of safety on campus, and how those perceptions might influence support of opposition of campus carry (De Angelis et al., 2017; Hassett et al., 2020; McMahon-Howard et al., 2020; Nodeland & Saber, 2019; Satterfield & Wallace, 2020). Because feeling less safe on campus has contributed to both support (McMahon-Howard et al; Satterfield & Wallace, 2020) and opposition of campus carry (De Angelis et al., 2017; Nodeland

& Saber, 2019; Satterfield & Wallace, 2020), it is possible that an individual's position on this policy might be dependent upon their perception of safety. Due to the varied results, the primary goal of the current study is to determine how perceptions of safety influence support or opposition of campus carry at the University of Montana. Furthermore, the proposed study will contribute to the research examining how an individual's position on campus carry might be influenced by perceptions of safety on campus.

The secondary goal of this study is to determine whether anxiety strengthens the support or opposition of campus carry at the University of Montana. Although past research has explored increases in anxiety before or after campus carry legislation, to date there is only one study that has examined the relationship between anxiety and an individual's position on campus carry (Kelling et al., 2021). Because anxiety is prevalent among college students, it is a pertinent issue since excessive worry about safety might influence one's support or opposition to campus carry. Given the lack of research on the relationship between anxiety and campus carry, the current study aims to contribute to the literature regarding how the role of anxiety affects the support or opposition of campus carry at the University of Montana.

Based on these aims, the current study will explore the following research questions:

Research Questions

Research Question 1a: Is there a significant relationship between perceptions of safety amongst undergraduate students at the University of Montana (Missoula) and Missoula College and their position on campus carry policies?

Research Question 1b: Will perceptions of safety predict support or opposition of campus carry amongst undergraduate students at University of Montana (Missoula) and Missoula College and their position on campus carry policies?

H1a: Perceptions of safety, as reported by undergraduate students at the University of Montana (Missoula) and Missoula College on the Perceptions of Safety Survey, will be significantly related to their position on campus carry.

H1b: Perceptions of safety, as reported by undergraduate students at the University of Montana (Missoula) and Missoula College on the Perceptions of Safety Survey, will be predictive of their position on campus carry.

Research Question 2a: Is there a significant relationship between levels of anxiety amongst undergraduate students at the University of Montana (Missoula) and Missoula College and their position on campus carry policies?

Research Question 2b: Will anxiety predict support or opposition of campus carry?

H2a: Anxiety, as reported on the GAD-7 by undergraduate students at the University of Montana (Missoula) and Missoula College will be significantly related to their position on campus carry.

H2b: Anxiety, as reported on the GAD-7 by undergraduate students at the University of Montana (Missoula) and Missoula College will be predictive of their position on campus carry.

Research Question 3: Do perceptions of safety and anxiety predict support or opposition of campus carry undergraduate students at the University of Montana (Missoula) and Missoula College?

H3: Perceptions of safety, as reported on the Perceptions of Safety Survey, and anxiety, as reported on the GAD-7 by undergraduate students at the University of Montana (Missoula) and Missoula College will be predictive of support or opposition of campus carry.

Chapter III: Methods

Participants

Data was collected in 2023 during the spring term for University of Montana (Missoula) and Missoula. Approximately one year prior to data collection (i.e., June, 2022), the Montana Supreme Court ruled in favor of the Montana University System's Board of Regents to maintain their state constitutional right to create firearm policies on their campuses (Sakariassen, 2022). This study recruited undergraduate students at the University of Montana (Missoula) and Missoula College through the University of Montana's SONA research portal and through direct emails sent to administrative associates at the various departments at the University of Montana (Missoula) and Missoula College. A professor in the Sociology Department (and a committee member of the current study) recruited students in one of his classes. Students recruited through SONA received credit for participating in research from their instructor. Non-SONA undergraduates were incentivized with the option to receive one of five $10 Amazon gift cards to participate in the study. A total of 298 undergraduate students signed up for this survey; 155 students participated through SONA and 143 students were recruited through department emails and a portion of these students were recruited directly through the Sociology professor. Participants for whom all data was missing data were omitted. Additionally, one participant was erroneously removed. This resulted in a total of 284 respondents. For demographic information related to age, race and ethnicity, gender, region, academic standing, college affiliation, and housing, see Table 1.

Table 1.

Demographic Characteristics of Participants

Characteristics	*n*	%
Age Ranges		

18 – 24 years old	238	83.9
25 – 34 years old	32	11.4
35 – 44 years old	13	4.9
45 and older	1	.4
Race and ethnicity		
White	235	82.7
Black or African descent	2	.7
Native American / Indigenous or Alaska Native	14	4.9
Asian	6	2.1
Native Hawaiian or Pacific Islander	2	.7
Middle Eastern or North African	3	1.1
Hispanic, Latino, or Spanish origin	13	4.6
Prefer not to answer	4	1.4
Prefer to self-describe	4	1.4
Gender		
Man	73	25.7
Woman	189	66.5
Non-binary	7	2.5
Gender fluid	4	1.4
Gender queer	4	1.4
Prefer not to answer	4	1.4
Prefer to self-describe	4	1.4
Transgender		
Yes	31	10.9
No	252	88
Academic standing		
Freshman	99	34.9
Sophomore	68	23.9
Junior	68	23.9
Senior	49	17.3
College affiliation		
University of Montana (Missoula)	267	94.0
Missoula College	17	6.0
Housing		
On-campus	104	36.6
Off-campus	180	63.4

For demographic information related to region, political affiliation, confidence in campus law enforcement, military reserves service, and firearm variables, see Table 2.

Table 2.

Demographic Characteristics of Participants

Characteristics	*n*	%

Region		
West	246	86.62
Midwest	11	3.87
South	13	4.58
Northeast	3	1.06
Overseas	1	.35
Lived in more than one state	4	1.41
Did not answer	6	2.11
Political affiliation		
Conservative	31	10.9
Somewhat conservative	24	8.5
Moderate	64	22.5
Somewhat liberal	56	19.7
Liberal	69	24.3
Other	39	13.7
Did not answer	1	.4
Campus law enforcement maintaining a safe environment		
Not confident	100	35.2
Neither confident nor unconfident	76	26.8
Confident	108	38.0
Campus law enforcement timely response to active shooter		
Not confident	131	46.1
Neither confident nor unconfident	70	24.6
Confident	82	28.9
Military reserves service		
Yes	13	4.6
No	270	95.1
Firearms: Grew up in household with firearms		
Yes	196	69.0
No	88	31.0
Firearms: Experience firing a gun		
Yes	200	70.4
No	84	29.6
Firearms: Current gun ownership		
Yes	67	23.6
No	215	75.7
Did not answer	2	.7
Firearms: Reason for gun ownership		
Protection of self and/or others	23	8.1
Second Amendment right	6	2.1
For recreation (hunting, sport, collector's items)	30	10.6
All of the above	6	2.3
Protection and recreation	2	.7

Measures

Perceptions of Safety

Although there is an existing instrument to assess campus safety, 32 National Campus Safety Initiative (NASPA, n.d.), the cost was prohibitive for the purposes of this study. Therefore, the "Perceptions of Safety" survey was created for this research project. Questions for this survey were derived from previous studies related to perceptions of safety (De Angelis et al., 2017; Hayes et al., 2021; McMahon-Howard et al., 2020; Shepperd et al., 2018b; Thompson et al., 2013; Yang & Wyckoff, 2010). This survey had 11 questions that aimed to capture perceptions of campus safety at the University of Montana. Questions about perceptions of campus law enforcement, as well as questions related to the necessity of protection, were also included. Participants assessed items on a Likert scale, where (1) was very unsafe and (5) was very safe. Participants were asked questions such as, "In general, how safe do you feel on campus at the University of Montana, Missoula?"

Because campus carry is a topic that individuals often feel strongly about, additional questions regarding perceptions of safety were included in an attempt to minimize extreme responses. Examples of these questions are as follows: "How safe do you feel on campus after receiving an email alert about a bear encounter at UM?" and "How safe do you feel walking to class when there is snow on the walkways?" Three remaining questions were utilized to assess perceptions of safety. These questions were: "In general, how safe do you feel while you are on campus grounds" (Question 1), "How safe do you feel during the day" (Question 2), and "How safe do you feel while you are attending a class on campus" (Question 5). To view the entire Perceptions of Safety Survey, see Appendix A.

Anxiety

Anxiety was assessed using the Generalized Anxiety Disorder-7 (GAD-7) screener. The GAD-7 is a self-report, seven-item questionnaire that was designed to "identify probable cases of generalized anxiety disorder (GAD) and assess symptom severity" (APA PsycNet, n.d.). In the current study, this scale was not used to clinically diagnose students with anxiety, but to assess for symptom severity. The GAD-7 assesses participants' health, in relation to anxiety, from the previous two weeks (Spitzer et al., 2006; Williams, 2014). The items on the survey ask participants to rate, for example, the degree to which they are worrying or not able to control their worrying (Williams, 2014). Items are rated on a Likert scale of (0) not at all (1) several days (2) more than half the days, and (3) nearly every day. Scores range from 0 – 21, where scores of 0 – 4 indicate minimal anxiety, scores of 5 – 9 indicate mild anxiety, scores of 10 – 14 indicate moderate anxiety, and scores of 15 – 21 indicate severe anxiety. The GAD-7 has excellent reliability, with Cronbach = .92 (Spitzer et al., 2006). For identifying generalized anxiety disorder, the GAD-7 has a sensitivity of 89% and specificity of 82% (Williams, 2014). Although the author of this study is more interested in general levels of anxiety as opposed to clinical anxiety, this measure was determined to still be useful in analyzing whether minimal, mild, moderate, or severe levels of anxiety, as determined by the GAD-7, were associated with support of opposition of campus carry. Furthermore, the only published study to date that has explored the relationship between anxiety and campus carry also utilized the GAD-7 (Kelling et al., 2021). The GAD-7 is published by Pfizer, but can be accessed free of charge and copyright restriction (Pfizer, 2010). Due to technical constraints in SPSS where scores with the inclusion of 0 were not factored into a participant's total, all scores were systematically adjusted to add a value of 1. To view the entire GAD-7 survey and recoded scoring guide, see Appendix B.

Campus Carry Survey

The Campus Carry Survey consisted of one question to determine participants' support or opposition of campus carry, "Faculty, staff, and students should be able to carry a concealed firearm on campus." Participants selected four choices, (1) strongly disagree, (2) somewhat disagree, (3) somewhat agree, (4) strongly agree. Similar to previous studies, this variable was recoded to reflect the dichotomous nature of opposition and support where (0) was oppose campus carry and (1) was support campus carry (Nodeland & Saber, 2019; Verrecchia & Hendrix, 2018). To view the Campus Carry Survey, see Appendix C.

Procedure

After participants completed an online consent form, they were directed to complete an anonymous, self-report surveys that included the Perceptions of Safety Survey, the GAD-7, the Campus Carry Survey, and demographic information. Data collection was conducted online through the Qualtrics survey system. The Perceptions of Safety Survey and GAD-7 were administered first and were followed by the Campus Carry Survey and demographic information. Due to the content of the questions on the Perceptions of Safety Survey and GAD-7, carryover effects were identified as a possible concern. Therefore, these two surveys were counterbalanced in Qualtrics to minimize carryover effects.

There are a number of demographic variables that have played an important role in understanding position on campus carry, such as gender and political affiliation (Hassett et al. 2020), race and/or ethnicity (Hayes et al., 2021), and gun ownership (Hassett et al., 2020; Shepperd et al., 2018b). For this reason, demographic information was recorded to understand if these variables affected the results. Demographic information consisted of 12 questions about the participant's age, gender, political affiliation, military experience, university affiliation, and

department affiliation. Because support of campus carry has also been related to gun ownership (Hassett et al., 2020), this demographic information also included questions regarding growing up in a home with firearms, gun experience, and current gun ownership. The questions related to gun ownership were derived from a published study by Shepperd and colleagues (2018b). If individuals currently owned a firearm, they were prompted to respond to a question about their reason for gun ownership: for protection (of self or others), recreation (e.g., hunting, sport, or for collection), or because it is their right per the Second Amendment (Boine et al., 2020). To view all the demographic questions, see Appendix D.

Chapter IV: Results

All hypotheses were analyzed in SPSS Version 28 through a Chi-Square Test of Independence and Logistic Regression. All statistical tests were run with an alpha of .05.

Chi-Square Test of Independence Assumptions

To assess if the strength of association between the variables in Hypothesis 1a, *perceptions of safety and position on campus carry*, and Hypothesis 2a, *anxiety and position on campus carry,* the Chi-Square Test of Independence was used. The Chi-Square Test of Independence is a nonparametric test that detects if categorical variables are associated and determines the strength of their association (Kent State University, 2022; Ott & Longnecker, 2016). Results were analyzed through a two-way table of frequencies; this table is often referred to as a contingency table. The variables in this study most likely met the assumptions that were required for a Chi-Square Test of Independence, which were as follows: the variables are categorical, there are at least two groups for each variable, groups are mutually exclusive, and observations are independent (i.e.., residuals from one observation were not correlated with residuals from another observation). The caveat to the assumption of independence is that a guardrail was not in place to prevent students who completed the SONA survey from completing the non-SONA survey. Although the surveys were anonymous, departmental affiliation was cross checked to determine the percentage of potential participants who could have completed both surveys. This resulted in 9.0% of potential crossover between surveys. The final assumption is that the sample size is relatively large, where each cell should have an expected frequency of at least one, and 80% of cells should have an expected frequency of at least five (Kent State University, 2022). Although there were 284 participants in the study, when the results did not meet this final assumption, categorical levels were combined to meet the cell count required for

the Chi-Square Test of Independence (Ott & Longnecker, 2016). Combining categorical levels was exercised with caution to not change the meaning of the variables or hypotheses.

Hypothesis 1a

It was hypothesized that perceptions of safety would be significantly related to undergraduate students' position on campus carry. The Chi-Square test of Independence was used to test this hypothesis. Three questions from the Perceptions of Safety survey were used to determine on overall safety score. These questions were Question 1 (Q1), "In general, how safe do you feel while you are on campus grounds?" Question 2 (Q2), "How safe do you feel on campus during the day?" and Question 5 (Q5), "How safe do you feel when you are attending a class on campus?" Cronbach's alpha for Q1, Q2, and Q5 was calculated at .79, which suggests that these three questions nearly meet the criteria for good reliability (UCLA: Statistical Consulting Group, n.d.). Two students reported on Q5 that they did not attend class on campus. These two students were omitted from the test, since the researcher was more interested in participants who spend time on campus, which would indicate a more accurate perception of safety while on campus ($N = 282$). Results from Q1, Q2, and Q5 were quantified to determine an overall safety score, where 3 was "Very Unsafe" and 15 was "Very Safe." To meet the assumption that each cell should have an expected frequency of at least one, and 80% of cells should have an expected frequency of at least five (Kent State University, 2022), safety scores were combined and recoded to 1 = Unsafe, 2 = Neither Safe Nor Unsafe, and 3 = Safe. See Appendix E for the scoring and coding guide. The relationship between the independent variable (perceptions of safety) and dependent variable (position on campus carry) was not significant, $\chi^2 (2, N=282) = .028$, $p = .986$. The Chi-Square test statistic was not greater than the critical value,

indicating that there was not a significant association between perceptions of safety and position on campus carry (see Table 2).

Table 2.

Perception of safety on position of campus carry (CC)

	Unsafe	Neither Safe nor Unsafe	Safe
Oppose CC (Observed)	2.1%	7.1%	55.0%
Oppose CC (Expected)	2.1%	7.1%	54.1%
Support CC (Observed)	1.1%	3.9%	30.9%
Support CC (Expected)	1.1%	3.9%	30.7%

Question 3 (Q3), "How safe do you feel on campus at night?" was originally excluded from the model due to concerns that any significant results could be a function of nighttime resulting in decreased perceived safety. However, when Q3 was included in the model, the assumptions were not met, even when categories were combined, since only 66.7% of the cells had an expected frequency of at least five. To meet assumptions, the expected frequency needed to be at least 80% (see Table 3).

Table 3.

Perception of safety on position (including night) on campus carry (CC)

	Unsafe	Neither Safe nor Unsafe	Safe
Oppose CC (Observed)	1.4%	20.6%	42.2%
Oppose CC (Expected)	1.1%	20.0%	43.0%
Support CC (Observed)	0.4%	10.6%	24.8%
Support CC (Expected)	0.6%	11.2%	24.0%

Hypothesis 2a

It was hypothesized that anxiety would be significantly related to undergraduate students' position on campus carry. The Chi-Square test of Independence was used to test this hypothesis. Three students did not complete the entirety of the GAD-7 questions; therefore, their responses were omitted ($N = 281$). Results from the GAD-7 questions were quantified to obtain an overall

anxiety score, where minimal anxiety was scored as 7 – 11 and severe anxiety was scored as 22 – 28. Results were recoded to create categorical variables of anxiety (Kelling et al., 2021), where 1 = minimal anxiety, 2 = mild anxiety, 3 = moderate anxiety, and 4 = severe anxiety. For a complete breakdown of the GAD-7 scoring guide, see Appendix B. For Hypothesis 2a, the assumption that each cell should have an expected frequency of at least one, and 80% of cells should have an expected frequency of at least five, was met (Kent State University, 2022). The relationship between the independent (anxiety) and the dependent variable (position on campus carry) was significant, χ^2 (3, N=281) = 13.524, p = .004, *phi* = .219. The Chi-Square test statistic was greater than the critical value, indicating that there was a significant association between anxiety and campus carry (see Table 4). The author of the current study computed Cramer's V, an effect size for the Chi-Square Test of Independence, based on the published results of Kelling and colleagues (2021) and found Cramer's V = .16. See Appendix F for calculations. The anticipated effect size for the current study was anticipated to be Cramer's V = .20, which was an effect size between the calculated Cramer's V = .16 for anxiety and campus carry (Kelling et al., 2021) and the reported Odds Ratio = .35 for safety and campus carry (Nodeland & Saber, 2019). Although these are not direct comparisons to the current study, these were the closest effect sizes that included either the variables and/or statistical tests in published studies (Kelling et al., 2021; Nodeland & Saber 2019). The effect size for the current study had the anticipated effect size of Phi and Cramer's V = .219.

Table 4.

Anxiety on position of campus carry (CC)

	Minimal Anxiety	Mild Anxiety	Moderate Anxiety	Severe Anxiety
Oppose CC (Observed)	11.7%	25.3%	15.3%	11.7%
Oppose CC (Expected)	15.5%	25.1%	14.4%	9.1%

Support CC (Observed)	12.5%	13.9%	7.1%	2.5%
Support CC (Expected)	8.7%	14.1%	7.3%	5.1%

Binary Logistic Regression Assumptions

To assess if there was a predictive relationship between Hypothesis 1b, *perceptions of safety and position on campus carry*, Hypothesis 2b, *anxiety and position on campus carry,* and Hypothesis 3, *perceptions of safety and anxiety on campus carry position,* binary logistic regression was used. Binary logistic regression is appropriate when researching the probability of a binary response (e.g., support or opposition) on independent variables (e.g., perceptions of safety and anxiety; James et al., 2021; Stoltzfus, 2011). Published studies that explored perceptions of safety before or after campus carry legislation was enacted also utilized logistic regression (Nodeland & Saber, 2019; Verrecchia & Hendrix, 2018). In the current study, the assumptions for logistic regression were met and are explained in detail below. The assumptions for logistic regression are as follows: errors are independent, the logit for continuous variables is linear, lack of multicollinearity, and the absence of outliers that have high influence (Stoltzfus, 2011). In this study, the errors were most likely independent, as explained above, and the absence of outliers was confirmed. The dependent variable in the current study was binary. However, the independent variables were measured as both categorial and continuous. When the independent variables were measured as categorical, the assumption regarding the linearity of the logit for continuous variables does not apply. However, when the independent variables were measured as continuous, a Box-Tidwell test was run to assess linearity of the model (Crowson, 2021a; Crowson, 2021b). To test for linearity, the independent variables were multiplied by their natural log. This transformation was required as logistic regression results in a sigmoid or s-shaped curve. Non-significant results indicate non-linearity of the logit, which provide greater confidence in the results from the original model (Crowson, 2021a; Crowson, 2021b).

Assumptions for linearity of the logit were met for Hypothesis 1b (perceptions of safety, p = .405), Hypothesis 2b (anxiety, p = .235), and Hypothesis 3 (perceptions of safety, p = .645; anxiety, p = .295). To determine if there was multicollinearity between the independent variables for Hypothesis 3, perceptions of safety and anxiety, collinearity diagnostics were analyzed by assessing tolerance and the variance inflation factor (Crowson, 2021c). For tolerance, values of 0 indicate greater dependence. The threshold for less dependence is .10, with values of 1.0 suggesting greater independence. Tolerance for both perceptions of safety and anxiety were both .960, indicating that these variables were independent. The variance inflation factor (VIF) is the inverse of tolerance, where lower values indicate greater independence and high values indicate dependence (Crowson, 2021c). When VIF is between 5 – 10, this is an indication that multicollinearity exists (Kim, 2019), suggesting that variables are highly correlated and should be addressed (CFI, n.d.). VIF for both perceptions of safety and anxiety were 1.042, which supports the independence of predictor variables found in the levels of tolerance. Therefore, when predictor variables were interpreted as continuous, assumptions were met for binary logistic regression.

Hypothesis 1b

It was hypothesized that perceptions of safety would be predictive of position on campus carry. Binary logistic regression was used to test this hypothesis. The model contained one categorical independent variable (perceptions of safety, where 1 = unsafe, 2 = neither safe nor unsafe, 3 = safe) and a binary dependent variable (support or opposition of campus carry). The model was not statistically significant, χ^2 (2, N = 282) = .28, p = .986, suggesting that the model was not able to differentiate between participants who supported or opposed campus carry based on their perceptions of safety (see Table 5). In other words, when the predictor variable,

perceptions of safety, is in the model, there is no improvement in prediction over what would be expected if the perceptions of safety was not in the model.

Table 5.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety (as a categorical variable)

	Df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Unsafe	2	.986			
Neither unsafe nor safe (1)	1	.905	1.100	.229	5.282
Safe (2)	1	.872	1.123	.274	4.601
Constant	1	.327	.500		

To maintain some of the richness in the data, the model was also assessed with the predictors (perceptions of safety) as a continuous variable. Although the fit improved slightly, when compared to running the model with a categorical predictor, the model was still not statistically significant, χ^2 (1, N = 282) = .146, p = .702 (see Table 6).

Table 6.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety (as a continuous variable)

	Df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Safety	1	.703	1.025	.903	1.164
Constant	1	.275	.410		

Question (Q3), “How safe do you feel on campus at night?” was originally excluded from the model due to concerns that significant results could be a function of nighttime resulting in decreased perceptions of safety. When Q3 was included in the model with safety as a categorical

variable, the results were not statistically significant, χ^2 (2, N = 282) = .834, p = .659 (see Table 7).

Table 7.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety including Q3 (as a categorical variable)

	Df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Unsafe	2	.687			
Neither unsafe nor safe (1)	1	.524	2.069	.221	19.341
Safe (2)	1	.448	2.353	.258	21.472
Constant	1	.215	.250		

Similarly, when Q3 was put into the model as a continuous variable, the model was still not statistically significant, χ^2 (1, N = 282) = 1.223, p = .269. See Table 8.

Table 8.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety including Q3 (as a continuous variable)

	Df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Safety	1	.272	1.054	.960	1.158
Constant	1	.063	.248		

Hypothesis 2b

It was hypothesized that levels of anxiety would be predictive of position on campus carry. Binary logistic regression was used to test this hypothesis. The model contained one categorical independent variable (anxiety, where 1 = minimal anxiety, 2 = mild anxiety, 3 = moderate anxiety, and 4 = severe anxiety) and a binary dependent variable (support or opposition of campus carry). The model was statistically significant, χ^2 (3, N = 281) = 13.939, p = .003,

suggesting that the model was able to differentiate between participants who supported or opposed campus carry based on their level of anxiety (see Table 9). In other words, when the predictor variable of anxiety was included in the model, there was an improvement in prediction over what would be expected if the anxiety was not in the model. The model, as a whole, explained between 4.8% (Cox and Snell R squared) and 6.6% (Nagelkerke R squared) of the variance in campus carry, and correctly classified 64.8% of cases. This suggests that with anxiety in the model, the ability to predict campus carry improves from 4.8% to 6.6%, and that anxiety improves classification ability by 14.8%- more than a 50% chance. The unstandardized regression coefficients were all negative, suggesting that as anxiety increases, support for campus carry decreases. All levels of anxiety were statistically significant in the model (minimal anxiety p = .005, mild anxiety p = .036, moderate anxiety = 0.23, and severe anxiety < .001). The strongest predictor of position on campus carry was severe anxiety, with an odds ratio of .20. The odds ratio of .20 for severe anxiety was less than 1, indicating a decrease in support for campus carry. This suggested that participants who reported experiencing severe anxiety over the past two weeks were 5.00 times more likely to not support campus carry. Effect sizes from published studies with similar variables or statistical tests appeared to range from Cramer's V=.16 (Kelling et al., 2021) to OR = .35 (Nodeland & Saber, 2019). This suggests that compared to published studies, the current model had a similar effect.

Table 9.

Logistic regression predicting likelihood of supporting campus carry (CC) based on anxiety (as a categorical variable)

	df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Minimal anxiety	3	.005			
Mild anxiety (1)	1	.036	.518	.280	.958

Moderate anxiety (2)	1	.023	.439	.215	.894
Severe anxiety (3)	1	<.001	.200	.078	.514
Constant	1	.808	1.061		

When the model included anxiety as a continuous independent variable (where 7 = minimal anxiety and 28 = severe anxiety), and support or opposition of campus carry as the dependent variable, the model was statistically significant, $\chi 2$ (1, N = 281) = 18.368, p < .001 (see Table 10). This model explained between 6.3% (Cox and Snell R squared) and 8.7% (Nagelkerke R squared) of the variance in campus carry, and correctly classified 66.2% of the cases. This suggests that with anxiety in the model as a continuous variable, the ability to predict campus carry improves from 6.3% to 8.7%, and that anxiety improves classification ability by 16.2%- more than a 50% chance. The unstandardized regression coefficient was negative, suggesting that as anxiety increases, support for campus carry decreases. Specifically, for a one-unit increase in anxiety, the predicted odds of falling into the category of support decreased by a factor of .896. Effect sizes from published studies with similar variables or statistical tests appeared to range from Cramer's V=.16 (Kelling et al., 2021) to OR = .35 (Nodeland & Saber, 2019). This suggests that compared to published studies, the current model had a smaller effect.

Table 10.

Logistic regression predicting likelihood of supporting campus carry (CC) based on anxiety (as a continuous variable)

	Df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Anxiety	1	<.001	.896	.850	.945
Constant	1	.010	2.870		

Hypothesis 3

It was hypothesized that when both independent variables were put into the model, the predictive relationship on campus carry might change. To address Hypothesis 3, *perceptions of safety and anxiety on campus carry position,* a binary logistic regression was conducted. The model contained two categorical independent variables (perceptions of safety, where 1 = unsafe, 2 = neither safe nor unsafe, 3 = safe and anxiety, where 1 = minimal anxiety, 2 = mild anxiety, 3 = moderate anxiety, and 4 = severe anxiety) and a binary dependent variable (support or opposition of campus carry). The model was statistically significant, χ^2 (5, N = 281) = 14.235, p = .014, suggesting that the model was able to differentiate between participants who supported or opposed campus carry based on their perceptions of safety and level of anxiety (see Table 11). In other words, when the predictor variables of perceptions of safety and anxiety were in the model, there was an improvement in prediction over what would be expected if the predictor variables were not in the model. The model explained between 4.9% (Cox and Snell R squared) and 6.8% (Nagelkerke R squared) of the variance in campus carry, and correctly classified 64.8% of cases. This suggests that with both predictor variables in the model, the ability to predict campus carry improves from 4.8% to 6.6%, and that anxiety improves classification ability by 14.8%- more than a 50% chance. However, when anxiety was the only predictor in the model, the model was also able to correctly classify 64.8% of the cases. Therefore, including both predictors did not improve the classification ability of the model. Nonetheless, as shown in Table 11, all levels of anxiety were statistically significant (minimal anxiety p = .005, mild anxiety p = .042, moderate anxiety = 0.25, and severe anxiety < .001). The unstandardized regression coefficients were all negative, suggesting that as anxiety increases, support for campus carry decreases. The strongest predictor of position on campus carry was severe anxiety, with an odds ratio of .190. The odds

ratio of .190 for severe anxiety was less than 1, indicating a decrease in support for campus carry. This suggested that participants who reported experiencing severe anxiety over the past two weeks were 5.26 times more likely to not support campus carry, controlling for other factors in the model. Effect sizes from published studies with similar variables or statistical tests appeared to range from Cramer's V=.16 (Kelling et al., 2021) to OR = .35 (Nodeland & Saber, 2019). This suggests that compared to published studies, the current model had a similar effect.

Table 11.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety and anxiety (as a categorical variables)

	df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Unsafe	2	.861			
Neither unsafe nor safe (1)	1	.891	.886	.157	5.004
Safe (2)	1	.712	.740	.150	3.650
Minimal anxiety	3	.005			
Mild anxiety (1)	1	.042	.525	.283	.976
Moderate anxiety (2)	1	.025	.441	.215	.903
Severe anxiety (3)	1	<.001	.190	.072	.502
Constant	1	.684	1.392		

When the model included both perceptions of safety and anxiety as continuous independent variables (perceptions of safety, where 3 = unsafe and 15 = safe and anxiety, where 7 = minimal anxiety and 28 = severe anxiety), and support or opposition of campus carry as the dependent variable, the model was statistically significant, $\chi 2$ (2, N = 281) = 18.661, p < .001. See Table 12. This model explained between 6.4% (Cox and Snell R squared) and 8.8% (Nagelkerke R squared) of the variance in campus carry, and correctly classified 68.0% of the cases. This suggests that with both perceptions of safety and anxiety in the model as continuous

variables, the ability to predict campus carry improves by 6.4% to 8.8%, and that the two continuous predictors improve classification ability by 18.0%, more than a 50% chance. The only predictor in the model that was significant was anxiety, $p < .001$. The unstandardized regression coefficient for anxiety was negative, suggesting that as anxiety increases, support for campus carry decreases. Specifically, for a one-unit increase in anxiety, the predicted odds of falling into the category of support decreased by a factor of .894. When anxiety was in the model alone as a continuous variable, the predictive ability was .896, which is a negligible difference. Effect sizes from published studies with similar variables and statistical tests appeared to range from Cramer's V=.16 (Kelling et al., 2021) to OR = .35 (Nodeland & Saber, 2019). This suggests that compared to published studies, the current study had a larger effect.

Table 12.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety and anxiety (as a continuous variables)

	df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Safety	1	.588	.964	.842	1.102
Anxiety	1	<.001	.894	.847	.943
Constant	1	.126	4.741		

Additional variables were added to the model to control for their effect on position of campus carry amongst participants. The total amount of participants without items missing in their responses was $N = 278$. These variables included: a) confidence in campus law enforcement to maintain a safe environment (0 = not confident, 1 = somewhat not confident, 2 = neither confident nor unconfident, 3 = somewhat confident, 4 = confident), b) carrying an item for self-protection (0 = no, 1 = yes), c) gender (0 = woman, 1 = man, 2 = non-binary, gender fluid,

gender queer, two spirit, prefer not to answer, prefer to self-describe), d) political affiliation (0 = other, 1 = conservative, 2= somewhat conservative, 3 = moderate, 4 = somewhat liberal, 5 = liberal), e) serving in the military reserves (0 = no, 1 = yes), and f) current gun ownership (0 = no, 1 = yes). When these variables were added to the model it was statistically significant, $\chi 2$ (19, N = 278) = 101.387, p < .001. See Table 13. This model explained between 30.6% (Cox and Snell R squared) and 42.0% (Nagelkerke R squared) of the variance in campus carry, and correctly classified 77.7% of the cases. This suggests that with the additional variables in the model, the ability to predict campus carry improves by 30.6% to 42.0%, and the additional predictors improve classification ability by 27.7%, more than a 50% chance. The predictors in the model that were significant were severe anxiety (p = .017), experience serving in the military reserves (p = .035), currently owning a gun (p = .002), and political affiliation (other p <.001, somewhat liberal p < .001, liberal p < .001). The strongest predictor for position on campus carry was a *somewhat* liberal political affiliation, with an odds ratio of .138. The odds ratio of .138 was less than 1.0, indicating a decrease in support for campus carry. This suggested that participants who identified as *somewhat* liberal were 7.25 times more likely to not support campus carry, controlling for other factors in the model. The second strongest predictor for position on campus carry was a *liberal* political affiliation, with an odds ratio of .141. The odds ratio of .141 was less than 1.0, indicating a decrease in support for campus carry. This suggested that participants who identified as liberal were 7.09 times more likely to not support campus carry, controlling for other factors in the model. The third strongest predictor was serving in the military reserves, with an odds ratio of 6.386. The odds ratio of 6.386 is greater than 1.0, indicating an increase in support for campus carry. This suggested that participants who served in the military reserves were 6.39 times more likely to support campus carry, controlling for other factors in the model.

Additionally, severe anxiety was a predictor for position on campus carry. With an odds ratio of .218. The odds ratio of .218 is less than 1.0, indicating a decrease in support for campus carry. This suggested that participants with severe anxiety were 4.59 times more likely to not support campus carry, controlling for other factors in the model. Finally, gun ownership predicted position on campus carry with an odds ratio of 3.270. The odds ratio of 3.270 is greater than 1.0, indicating an increase in support for campus carry. This suggests that participants who own firearms were 3.27 times more likely to support campus carry, controlling for other factors in the model. Effect sizes from published studies with similar variables or statistical tests appeared to range from Cramer's V=.16 (Kelling et al., 2021) to OR = .35 (Nodeland & Saber, 2019). This suggests that compared to published studies, the current model had a larger effect for participants who identified as somewhat liberal and liberal.

Table 13.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety and anxiety (as categorical variables) controlling for other predictors in the model.

	df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper
Unsafe	2	.813			
Neither safe nor unsafe (1)	1	.538	.516	.063	4.231
Safe (1)	1	.664	.650	.093	4.541
Minimal anxiety	3	.116			
Mild anxiety (1)	1	.200	.608	.284	1.302
Moderate anxiety (2)	1	.467	.722	.300	1.737
Severe anxiety (3)	1	.017	.218	.062	.765
Campus police: not confident	4	.919			
Campus police: somewhat not confident (1)	1	.766	1.187	.364	3.879
Campus police: neither confident nor unconfident (2)	1	.885	.925	.319	2.683
Campus police: somewhat confident (3)	1	.980	.986	.328	2.966
Campus police: confident (4)	1	.510	1.624	.384	6.858
Self-protection item: yes (1)	1	.721	1.131	.575	2.227

Gun Ownership: yes (1)	1	.002	3.270	1.547	6.911
Military reserves: yes (1)	1	.035	6.386	1.141	35.734
Gender: woman	2	.900			
Gender: man (1)	1	.906	.952	.423	2.144
Gender: additional categories (2)	1	.673	1.312	.371	4.643
Political affiliation: other	5	<.001			
Political affiliation: conservative (1)	1	.122	2.547	.780	8.320
Political affiliation: somewhat conservative (2)	1	.914	1.067	.328	3.474
Political affiliation: moderate (3)	1	.593	.775	.305	1.972
Political affiliation: somewhat liberal (4)	1	<.001	.138	.045	.427
Political affiliation: liberal (5)	1	<.001	.141	.046	.433
Constant	1	.721	1.482		

Note. Data reported for "campus police" in this table refers to participants' confidence in campus law enforcement to maintain a safe environment. "Additional gender categories" refer to participants who identify as: non-binary, gender fluid, gender queer, two spirit, prefer not to answer, prefer to self-describe.

When anxiety and perceptions of safety were continuous, the fit of the model was similar to anxiety and perceptions of safety as categorical variables. The model was statistically significant, $\chi 2$ (16, N = 278) = 101.855, p < .001. See Table 14. This model explained between 30.7% (Cox and Snell R squared) and 42.2% (Nagelkerke R squared) of the variance in campus carry, and correctly classified 77.3% of the cases. This suggests that with the additional variables in the model, the ability to predict campus carry improves by 30.7% to 42.2%, and that the additional predictors improve classification ability by 27.3%, more than a 50% chance. The predictors in the model that were significant were severe anxiety (p = .010), experience serving in the military reserves (p = .046), currently owning a gun (p = .002), and political affiliation (other p <.001, somewhat liberal p < .001, liberal p < .001). A liberal political affiliation was the strongest predictor of position on campus carry, with an odds ratio of .132, controlling for other factors in the model. The odds ratio of .132 was less than 1.0, indicating a decrease in support for campus carry. This suggested that participants who identified as liberal were 7.58 times more

likely to not support campus carry, controlling for other factors in the model. The second strongest predictor of position on campus carry was a *somewhat* liberal political affiliation, with an odds ratio of .148. The odds ratio of .148 was less than 1.0, indicating a decrease in support for campus carry. This suggested that participants who identified as *somewhat* liberal were 6.76 times more likely to not support campus carry, controlling for other factors in the model, The next strongest predictor was serving in the military reserves, with an odds ratio of 5.652. The odds ratio of 5.652 is greater than 1.0, indicating an increase in support for campus carry. This suggested that participants who served in the military reserves were 5.65 times more likely to support campus carry, controlling for other factors in the model. Gun ownership also predicted position on campus carry with an odds ratio of 3.212. The odds ratio of 3.212 is greater than 1.0, indicating an increase in support for campus carry. This suggests that participants who own firearms were 3.21 times more likely to support campus carry, controlling for other factors in the model. Additionally, anxiety was a predictor for position on campus carry with an odds ratio of .918. Specifically, for a one-unit increase in anxiety, the predicted odds of falling into the category of support decreased by a factor of .918, controlling for other factors in the model. Effect sizes from published studies with similar variables or statistical tests appeared to range from Cramer's V=.16 (Kelling et al., 2021) to OR = .35 (Nodeland & Saber, 2019). This suggests that compared to published studies, the current model had a larger effect for participants who identified as somewhat liberal and liberal.

Table 14.

Logistic regression predicting likelihood of supporting campus carry (CC) based on perceptions of safety and anxiety (as continuous variables) controlling for other predictors in the model.

	df	p (Sig.)	Exp(*B*) Odds Ratio	95.0% C.I. for Odds Ratio	
				Lower	Upper

Safety	1	.935	.993	.833	1.184
Anxiety	1	.010	.918	.860	.980
Not confident in campus police	4	.922			
Somewhat not confident in campus police (1)	1	.724	1.235	.382	3.990
Neither confident nor unconfident in campus police (2)	1	.938	1.044	.357	3.054
Somewhat confident in campus police (3)	1	.983	.988	.322	3.033
Confident in campus police (4)	1	.480	1.691	.394	7.253
Self-protection item: yes (1)	1	.678	1.155	.585	2.281
Gun ownership (1)	1	.002	3.212	1.527	6.754
Military reserves: yes (1)	1	.046	5.652	1.029	31.057
Gender: woman	2	.872			
Gender: man (1)	1	.798	.900	.403	2.011
Gender: additional categories (2)	1	.675	1.314	.366	4.715
Political affiliation: other	5	<.001			
Political affiliation: conservative (1)	1	.209	2.121	.656	6.863
Political affiliation: somewhat conservative (2)		.955	1.034	.318	3.363
Political affiliation: moderate (3)	1	.654	.808	.318	2.052
Political affiliation: somewhat liberal (4)		<.001	.148	.048	.457
Political affiliation: liberal (5)	1	<.001	.132	.043	.406
Constant		.506	2.341		

Note. Data reported for "campus police" in this table refers to participants' confidence in campus law enforcement to maintain a safe environment. "Additional gender categories" refer to participants who identify as: non-binary, gender fluid, gender queer, two spirit, prefer not to answer, prefer to self-describe.

From all the G*Power Analyses stated above, with adjustments for feasibility for Hypothesis 3, the greatest required sample size was 108 for Hypothesis 1a. The current study had 284 participants and exceeded this required sample size. To view the calculation of the degrees of freedom for each hypothesis, see Appendix F.

Chapter V: Discussion

This study utilized a quantitative approach to explore University of Montana (Missoula) and Missoula College undergraduate students' positions on campus carry in relation to their perceptions of safety and levels of anxiety. The aim of the study was twofold. The first objective was to determine the existence of a relationship between the variables through a Chi-Square Analysis. The second objective was to ascertain if a predictive relationship existed between the independent variables and dependent variable. The results of the study will be discussed below, along with future directions, followed by limitations, and implications for the University of Montana (Missoula) and Missoula College.

Research Question 1

The first research question was comprised of two sub-questions. The first sub-question was, *"Is there a significant relationship between perceptions of safety amongst undergraduate students at the University of Montana (Missoula) and Missoula College and their position on campus carry policies?*" It was hypothesized that there would be a relationship between perceptions of safety and position on campus carry. The second sub-question was, *"Will perceptions of safety predict support or opposition of campus carry amongst undergraduate students at University of Montana and Missoula College and their position on campus carry policies?"* It was hypothesized that there would be a predictive relationship between perceptions of safety and position on campus carry.

During the analysis of the data, noteworthy information was uncovered. Primarily, a relationship was not found between undergraduates' perceptions of safety and their position on campus carry. Furthermore, perceptions of safety were not predictive of their position on campus carry. Previous studies on have shown varied results regarding perceptions of safety and how

those perceptions might influence support or opposition of campus carry (De Angelis et al., 2017; McMahon-Howard et al., 2020; Nodeland & Saber, 2019; Satterfield & Wallace, 2020). The mixed results might be a larger reflection of the inconsistency through which this policy is legislated. For example, the previously cited studies revealed different outcomes regarding perceptions of safety and campus carry. De Angelis and colleagues (2017) conducted their research in a rural region in the western region of the United States, McMahon-Howard and colleagues' (2020) study took place in Georgia, Nodeland and Saber's (2019) research was in Texas, and Satterfield and Wallace (2020) collected data on a nationwide sample. Different legislation in the various states could reflect the majority opinions of constituents in their specific geographic regions. Furthermore, each state does not have a homogenous population and campus carry is a policy that can elicit strong feelings of support or opposition. Therefore, it can be expected that variability exists in the results. In the current study, however, there was no relationship between the independent variable (perceptions of safety) and the dependent variable (position on campus carry). This is surprising considering that a relationship was expected. However, literature that supports a relationship between these variables occurred during the period either before or after campus carry was legislated (McMahon-Howard et al., 2020; Nodeland & Saber, 2019). This might have resulted in a higher salience for participants where safety and campus carry were prominent concerns. At the University of Montana (Missoula), H.B. 102 did not come to fruition and campus carry is not currently allowed on these campuses. Therefore, campus carry might not have been as salient for students at the University of Montana (Missoula) and Missoula College as compared to other studies where this policy was either enacted or in the process of being enacted (McMahon-Howard et al., 2020; Nodeland & Saber, 2019). It is therefore possible that the low salience of these variables for the undergraduate

students in the current study resulted in no relationship between perceptions of safety and campus carry.

Also noteworthy in the current study was that most students at the University of Montana and Missoula College reported feeling "moderately safe" or "very safe" on campus (78.2%, N = 284*),* and a majority of students also reported that they opposed campus carry (64.1%, N = 284). When students perceive their collegiate environment as safe, their need for self-protection might not be as acute. It is worth nothing, however, that a majority of students on campus (52.1%, N = 284) reported that they already carried an item for self-protection (such as mace or a sharp-edged object). Therefore, their perception of safety might not be due to a general sense of lack of threats on campus, but due to their ability to protect themselves if danger were to occur. Because a majority of students already use a method of self-protection, this could have affected the results in the current study. Presently, students are not allowed to carry a firearm on campus, but they can carry other methods of self-protection. If students already feel safe and carry an item for self-protection, then campus carry might be irrelevant.

College campuses are typically safe environments (Birnbaum, 2013; Everytown for Gun Safety, 2022a; Gius, 2019) and the University of Montana (Missoula) and Missoula College have not experienced a mass shooting. Should this unfortunate event occur, the relationship between perceptions of safety and campus carry might change. However, the results of the current study indicate the perceptions of safety and campus carry are not related at the University of Montana (Missoula) and Missoula College. Should campus carry be legislated again in the future, it would be important to consult the student population to determine how their status has changed.

Research Question 2

The second research was comprised of two sub questions. The first sub-question was, *"Is there a significant relationship between anxiety, as reported on the GAD-7, amongst undergraduate students at the University of Montana (Missoula) and Missoula College and their position on campus carry policies?*" It was hypothesized that there would be a relationship between anxiety and position on campus carry. The second sub-question was, *"Will anxiety, as reported on the GAD-7, predict support or opposition of campus carry amongst undergraduate students at University of Montana (Missoula) and Missoula College and their position on campus carry policies?"* It was hypothesized that there would be a predictive relationship between anxiety and position on campus carry.

The results of the current study indicated a significant relationship between levels of anxiety and campus carry. There has only been one study to date that has explored the relationship between anxiety, amongst other variables, and campus carry (Kelling et al., 2021). In the current study, of the students who reported some level of anxiety, 52.3% opposed campus carry. Kelling and colleagues (2021) found similar results. In their study, amongst students who reported some level of anxiety, 54.6% were "against" or "very against" campus carry policies. Kelling and colleagues (2021) did not offer an explanation for these results. However, it is possible that individuals with some level of anxiety are already experiencing concern about potential threats. Adding firearms to the environment might further increase their anxiety, making them less likely to support this policy.

Kelling and colleagues (2021) also found that the majority of participants with extreme positions (i.e., either strongly supported or strongly opposed campus carry) reported no anxiety (i.e., 260 out of 369 or 70.5%). In the current study, similar results were found, but with a

smaller majority (35 out of 68, or 51.5%). Kelling and colleagues (2021) did not hypothesize the reasoning behind lower anxiety amongst participants with extreme responses. It is possible that if an individual strongly supports campus carry, they might feel more prepared to protect themselves should a violent crime occur (Students for Concealed Carry, n.d.), thus reducing their anxiety. It is also possible that if an individual strongly opposes campus carry, they might determine that their environment is safer without firearms (Everytown for Gun Safety, 2022), thus reducing their anxiety. Therefore, having strong convictions about campus carry at the University of Montana (Missoula) and Missoula College might be representative of the lower levels of anxiety amongst students with extreme responses in this study (51.5% of participants).

In the current study, the predictive relationship between anxiety and position on campus carry was also explored. Anxiety was found to be predictive of opposition of a campus carry policy. As levels of anxiety progressed from low to high, support of campus carry decreased. Because anxiety has been defined as excessive worry over "anticipation of a future threat" (American Psychiatric Association, 2022, p. 215), it is possible that students who are more anxious might find an environment with firearms to be more dangerous, unpredictable, and threatening. These students might oppose campus carry as a means of decreasing the potential threats in their environment. It is not surprising, therefore, that a person with some level of anxiety might want to minimize threats in their environment and oppose a policy where more unpredictability could occur.

Anxiety, as it is related to campus carry, can be viewed in terms of risk and protective factors. Satterfield and Wallace (2020) explained that those who supported campus carry viewed the policy as a protective factor and those who opposed campus carry regarded the policy as a risk factor. In terms of campus carry being a protective factor, Kelling and colleagues (2021)

found that students who owned firearms reported less anxiety than non-gun owners. In the current study, gun owners also reported experiencing less anxiety than non-gun owners across every level of anxiety (e.g., 2.5% of gun owners reported severe anxiety and 11.8% of non-gun owners reported severe anxiety). Kelling and colleagues (2021) hypothesized that gun owners might experience a greater sense of self-control due to their ability to protect themselves in threatening situations, whereas non-gun owners might experience more anxiety due to a lack of agency when in danger. It has also been shown that gun ownership is related to a belief that the world is a dangerous place (Buttrick, 2020; Kelling et al., 2021; Stroebe et al., 2017), therefore necessitating a means of self-protection such as a firearm. Anxiety might therefore be reduced when used as a protective mechanism against perceived dangers. Regarding campus carry as a risk factor, starting college can invoke anxiety for a variety of factors, such as being away from home for the first time, social pressure, and academic pressure (Bamber & Schneider, 2016; Bhujade, 2017). It is possible that adding a campus carry policy to a collegiate setting could exacerbate anxiety for already-anxious individuals and this policy could become a risk factor for them. If campus carry is legislated in the future, careful consideration should be taken to weigh the protective factors versus risk factors for the campus population.

Although an individuals' increased level of anxiety was predictive of their opposition to campus carry, this study reported a larger effect in the predictive relationship than previously published studies. This could have occurred for a couple of reasons. First, there are few published studies to date that specifically explore the predictive relationship between anxiety and position on campus carry. Kelling and colleagues (2021) studied the relationship of anxiety and campus carry through a Chi-Square Test of Independence, but they did not include a model to examine the predictive relationship of these two variables. Nodeland and Saber (2019) utilized

logistic regression in their study to explore the predictive relationship of safety and campus carry, but not anxiety. Therefore, the effect sizes in this study were indirect comparisons to models with different statistical tests or variables. Therefore, there is no direct basis from which to compare the effect size of the current study. Second, there might have been mediating variables that were not put into the model that may have contributed to a larger effect. For example, had known predictors of campus carry been put into the model, these variables might better explain the effect that was observed. Examples of known predictors of position on campus carry are gun ownership (Hassett et al., 2020; Shepperd et al., 2018), gender (Hayes et al., 2021), and political affiliation (Hassett et al., 2020).

Research Question 3

The third research was, *"Do perceptions of safety and anxiety predict support or opposition of campus carry amongst undergraduate students at the University of Montana and Missoula College."* It was hypothesized that there would be a predictive relationship when both independent variables (perceptions of safety and anxiety) were put into the model. In alignment with the previous model in this study, perceptions of safety was not a significant predictor of position campus carry, but anxiety was a significant predictor of campus carry. However, the improvement on anxiety when both predictors were in the model was negligible.

Although it was hypothesized that putting both independent variables into the model would result in a stronger and predictive relationship, given the results of Hypothesis 1 and 2, the results are not surprising. This is because perceptions of safety was not related to campus carry. However, anxiety was not only related to this policy, but also predictive of opposition of campus carry. When both predictors were put into the model, the results were nearly the same and therefore supported the outcome of Hypothesis 1 and 2. However, had perceptions of safety also

been predictive of campus carry, it would have been interesting to determine which variable contributed more to position on campus carry. In the current study, unlike anxiety, perceptions of safety did not contribute to the model.

It is worth considering that perceptions of safety might be predictive of anxiety, but not of positionality on campus carry. An individual's anxiety might increase if they do not perceive their environment as being safe. However, if a person does not perceive their environment as safe, their first thought might not be whether they have a firearm, but instead how they can get to safety. Thus, an unsafe environment might simply increase anxiety. Furthermore, many students in the current study already carry an item of self-protection (such as a sharp object or mace) and might not consider needing a firearm because they already have an item for self-defense. It is also possible that college students consider their environment to be safe (Birnbaum, 2013; Everytown for Gun Safety, 2022a; Gius, 2019) and are not worried about firearms. College students have reported that they experience stress about assault, body image, difficulties with drugs, homesickness, issues around sex and sexuality, loneliness, relationships, transitions, and workload (Bhujade, 2017). Bhujade (2017) did not report that students were worried about safety.

Reyns and colleagues (2022), on the other hand, analyzed data from 8950 undergraduate students at 13 colleges and found that 63% of students were concerned about campus gun violence. They highlighted that their results only considered the presence, and not the intensity, of concern about gun violence. These results indicated that students were thinking and possibly anxious about firearms on campus. Although Reyns and colleagues (2022) focused on other variables such as gender, physical vulnerability, exposure to campus gun violence, prior interpersonal violent victimization, and social integration, they also considered perceptions of

safety. They found that students who felt safe in the community surrounding their college campus at night, were also less concerned about gun violence on campus at night. They hypothesized that students who feel safe on campus most likely experience familiarity and predictability. They suggested that this stability in their environment can convince students that gun violence is not a typical occurrence, therefore not an area of concern (Reyns et al., 2022). An indirect connection can be made to the current study by suggesting that the results of Reyns and colleagues (2022) were due to that a lack of anxiety (based on familiarity, predictability, and a perceived safe environment), which decreased concerns for firearms. Accordingly, lower anxiety and perceived safety were related to a decrease in worry about gun issues. Although the current study did not find a relationship between perceptions of safety, anxiety, and campus carry, the study by Reyns and colleagues (2022) suggests that a relationship still might exist between these variables. This indicates that nuancing the current variables (perceptions of safety, anxiety, and campus carry) in a slightly differently way (e.g., predictability in environment and concern about gun violence) might result in a different outcome in the model.

In a systematic review of the literature by Hassett and colleagues (2020), they offer that much of the variance in position on campus carry can be explained by known variables (i.e., gender, political affiliation, and gun ownership). The current study had similar findings with political affiliation, gun ownership, and military service as predictors of campus carry. Gender, however, was not a significant predictor in the current study. This could be due to a lower representation of male-identifying participants (25.7%). Hassett and colleagues (2020) suggest that future studies should not focus on known predictors, but instead investigate environmental factors that can be addressed through policy, such as “perceptions of school safety, attitudes towards school service, and media exposure” (p.57). The aim of the current study was to follow

Hassett and colleagues' recommendation (2020) and investigate variables (i.e., perceptions of safety and anxiety) that could be addressed through policy (e.g., hiring more campus law enforcement employees or anxiety screeners for all students). Although perceptions of safety was not predictive of position on campus carry, severe anxiety was predictive of opposition to campus carry. Participants with severe anxiety were 4.59 times more likely to oppose campus carry, controlling for other factors in the model. This variable has not been well-established in the literature. However, as previously stated, firearms might be perceived as a risk factor for anxious individuals, which might exacerbate their anxiety. For these individuals, it is possible that firearms might increase their anxiety, resulting in their opposition of campus carry. It is also possible that their anxiety might generalize to any environmental variable that they would find threatening. Identifying the source of anxiety for these individuals and creating a less threatening environment could increase learning for severely anxious students.

Limitations

There were many limitations to the current study. This study did not utilize a standard safety measure, therefore only three questions from the Perceptions of Safety Study were put into the model (i.e., questions about Q1: safety on campus grounds, Q2: safety on campus during the day, and Q5: safety when attending a class on campus). Although Cronbach's alpha for Q1, Q2, and Q5 was.792, suggesting that these three questions almost meet the criteria for good reliability, it might have been more effective to simply ask Question 1. Including Questions 2 and 5, although more specific, might not have broadly addressed the nature of perceived safety as much as the first question.

This study was also limited in its quantitative approach. By not including qualitative responses, the researcher can only hypothesize the meaning of some of the results. If participants

were asked about what contributes to their safety, the researcher would not have needed to hypothesize whether increased feelings of safety were due to carrying a method of self-protection or another contributing variable. Furthermore, approval was given by IRB to directly ask students if they carried a method of self-protection, but not if they carried a firearm. Having access to this information could have offered interesting insights into the current use of campus carry, but would have potentially implicated students who were breaking university policy.

Qualitative responses could have also provided additional insight about the participants experiencing some level of anxiety. For example, participants who were anxious could have explained what was contributing to their anxiety. This would have potentially provided a deeper understanding of this variable and its relationship to safety and campus carry.

Furthermore, including qualitative responses for campus carry could have contributed more information about the current research questions. If participants had the opportunity to offer specifics for why they support, oppose, or were indifferent to this policy, variables that were not included in the model could have been discovered. This would have provided more insight regarding participants' position on campus carry and possible directions for future research.

Although it is possible that there was lower salience of the research questions because H.B. 102 did not become campus policy different questions could have been asked to address this concern. For example, participants could have been directly asked if they would feel more or less safe if the University of Montana (Missoula) and Missoula College had a campus carry policy. By directly asking this question, the added benefit would have been that two of the variables (perceptions of safety and campus carry) would be merged into one variable that could

be put into a logistic regression model with anxiety. This would have allowed for a model with a more precise measurement of the research question.

It is also possible that the study provoked extreme responses. In their study, Lewis and Taylor (1955) found that individuals with higher levels of anxiety selected more extreme responses. In the current study, it is possible that individuals with higher anxiety might have selected more extreme responses regarding their perceptions of safety and position on campus carry. Similar to the results of Kelling and colleagues (2021), this was not completely supported, since individuals with extreme responses to campus carry reported lower levels of anxiety. However, when exploring topics that might provoke anxiety, such as school shootings, extreme responses are still a limitation worth considering.

The study was also limited because it only included undergraduate participants which is not a representative sample of the campus population. By including a broader population in the study, a more holistic picture of the campus community could have been captured. Additionally, the sample collection technique did not allow for generalizability to the broader population of students as they were not selected using simple random sampling techniques. Furthermore, the study was limited due to the lack of diversity in the population that was sampled, with a majority of the participants identifying as White (82.7%). Although this is a reflection of the homogeneity that exists in the state of Montana, these results are not generalizable to a more diverse population.

Another limitation was regarding the independence of errors. This was due to not putting a guardrail in place to prevent students who completed the SONA survey from completing the non-SONA survey. As stated previously, the surveys were anonymous, preventing a direct analysis in which participants could be compared across surveys. However, departmental

affiliation was cross-checked to determine the percentage of potential participants who could have completed both surveys. This resulted in 9.0% of potential crossover between surveys.

Finally, approximately half of the students participated in this research for class credit (n = 152) and the other half participated for a $10 Amazon Gift Card (n = 133). Some of these participants might have taken this study because campus carry was an important topic to them, which might have skewed the results towards extreme responses as Wells and colleagues (2012) found with college students who completed an online survey about campus carry. Additionally, some of the students who received an Amazon Gift Card were sociology students recruited by their professor, who was a committee member on this project; 41 participants (14.44%) reported Sociology as their designated department affiliation. It is unclear how many of those students were motivated to take the study out of obligation, incentivized by the gift card, or motivated by extreme responses.

Future Directions

To have a clearer understanding of the relationships between perceptions of safety, anxiety, and campus carry, more research is needed. In the current study, as participants' levels of anxiety increased, support of campus carry decreased. It can only be hypothesized that for these individuals, a predictable environment would reduce their anxiety. However, a qualitative study could ask participants to explain the nature of their opposition of campus carry, as well as the effect it would have on their anxiety, so that causality would not have to be inferred.

In the current study, most of the students felt safe and carried a method of self-protection. It was unclear if their safety was a function of a predictable environment or if it was due to carrying an item for self-protection. It is possible, however, that having a sense of control in a dangerous situation can increase feelings of safety and reduce anxiety. Future studies would

benefit from exploring the relationship between different methods of perceived self-control in a threatening situation, such as a campus shooting, and how that self-control would affect levels of anxiety and perceptions of safety. Examples of methods of self-control could be: required active shooter trainings for the campus population, martial arts defense classes, or carrying a self-protection method (such as mace, a sharp object, or firearms).

Kelling and colleagues (2021) found that the majority of participants with extreme positions (i.e., either strongly supported or opposed campus carry) reported no anxiety (i.e., 260 out of 369 or 70.5%). Campus carry is a topic in which individuals can have strong opinions. Future research could explore the relationship between strong convictions and a reduction in anxiety within the context of campus carry. This would be beneficial because it could provide a deeper understanding of the relationship between these variables and also uncover if a reduction in anxiety is due to self-protection or strong convictions. This information could help guide anxiety reduction for individuals concerned about their safety.

Implications for University of Montana and Missoula College

Overall, students at the University of Montana (Missoula) and Missoula College feel safe (78.2%, $N = 284$). It was noteworthy that a majority of participants (52.1%, $N = 284$) communicated that they already carry an item for self-protection (such as mace or a sharp-edged object). Therefore, it was not clear if students' perception that they were safe was a function of carrying an item of self-protection or a function of an overall lack of perceived threats on campus. Future research on campus safety at the University of Montana (Missoula) and Missoula College could parse out the difference between safety as a function of self-protection or due to an overall lack of danger on campus. If safety is due to an overall lack of danger on campus, then the university should continue with their current policies and procedures. However, if safety is

due to students carrying an item of self-protection, then the university should consider alternate methods to increase safety so that students can focus on learning.

Campus carry has been viewed as both a risk and protective factor (Satterfield & Wallace, 2020). In the current study, it was suggested that these risk and protective factors might be related to anxiety. Individuals who support campus carry as a method of self-protection might have reduced anxiety, whereas individuals who are already anxious might view campus carry as a risk factor that exacerbates their anxiety. Anxiety is prevalent amongst college students. At the University of Montana, 37.0% of college students reported that anxiety is one of the major barriers to their academic performance (American College Health Association, 2021). When a student is anxious, they might be assessing their environment in anticipation of a future threat. When a student is anticipating a threat, even if those threats are a misinterpretation of the environment, they could have difficulty focusing on their learning. Learning is one of the primary purposes of higher education. Therefore, uncovering methods to reduce anxiety and increase safety should be of utmost concern to decision makers at the University of Montana (Missoula) and Missoula College to create the most conducive environment to learning.

In the current study, as anxiety increased amongst participants, support for campus carry decreased. Understanding how anxiety affects positionality on this policy is important for the University of Montana (Missoula) and Missoula College when crafting future policy. Should the Board of Regents at the Montana University System ever reconsider a campus carry policy, it would be wise to consult the campus population to explore how their anxiety would be affected.

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Appendix A

Perceptions of Safety Survey

1. In general, how safe do you feel while you are on campus grounds?
(1) Very unsafe
(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe

2. How safe do you feel on campus during the day?
(1) Very unsafe
(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe

3. How safe do you feel on campus at night?
(1) Very unsafe
(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe

4. How safe do you feel when you receive a UM Alert email that there has been a bear encounter on campus?
(1) Very unsafe
(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe

5. How safe do you feel when you are attending a class on campus?
(1) Very unsafe
(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe
(9) Not applicable

6. How safe do you feel when you are at a sporting event at UM?
(1) Very unsafe

(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe
(9) Not applicable

7. How safe do you feel walking to class when there is snow on the walkways?
(1) Very unsafe
(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe
(9) Not applicable

8. How safe do you feel on campus after receiving an email alert about an assault on campus?
(1) Very unsafe
(2) Moderately unsafe
(3) Neither safe nor unsafe
(4) Moderately safe
(5) Very safe

The following questions will ask about your perceptions surrounding law enforcement on campus:

9. How confident are you that campus law enforcement can maintain a safe environment?
1) Not confident
(2) Somewhat not confident
(3) Neither confident nor unconfident
(4) Somewhat confident
(5) Confident

10. How confident are you that campus law enforcement will have a timely response if there is an active shooter on campus?
1) Not confident
(2) Somewhat not confident
(3) Neither confident nor unconfident
(4) Somewhat confident
(5) Confident

11. In order to keep myself safe, I carry items (e.g., mace, sharp-edged object, etc.) for protection while I am on campus.
(1) yes
(2) no

Appendix B

GAD-7 Anxiety

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

Column totals _____ + _____ + _____ + _____ =

Total score _____

If you checked any problems, how difficult have they made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
☐	☐	☐	☐

Source: Primary Care Evaluation of Mental Disorders Patient Health Questionnaire (PRIME-MD-PHQ). The PHQ was developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke, and colleagues. For research information, contact Dr. Spitzer at ris8@columbia.edu. PRIME-MD® is a trademark of Pfizer Inc.

Scoring GAD-7 Anxiety Severity

This is calculated by assigning scores of 0, 1, 2, and 3 to the response categories, respectively, of "not at all," "several days," "more than half the days," and "nearly every day."
GAD-7 total score for the seven items ranges from 0 to 21.

0–4: minimal anxiety

5–9: mild anxiety

10–14: moderate anxiety

15–21: severe anxiety

GAD-7 Anxiety Recoded Scoring Guide

Over the last two weeks, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	1	2	3	4
2. Not being able to stop or control worrying	1	2	3	4
3. Worrying too much about different things	1	2	3	4
4. Trouble relaxing	1	2	3	4
5. Being so restless that it is hard to sit still	1	2	3	4
6. Becoming easily annoyed or irritable	1	2	3	4
7. Feeling afraid as if something awful might happen	1	2	3	4

Scoring GAD-7 Anxiety Survey

This is calculated by assigning scores of 1, 2, 3, and 4 to the response categories, respectively, of "not at all," "several days," "more than half the days, and "nearly every day."
The readjusted GAD-7 total score for the seven items ranges from 7 to 28.

7-11: minimal anxiety (Recoded as 1 for categorical analysis)
12-16: mild anxiety (Recoded as 2 for categorical analysis)
17-21: moderate anxiety (Recoded as 3 for categorical analysis)
22-28: severe anxiety (Recoded as 4)

Appendix C

Campus Carry Survey

1. Faculty, staff, and students should be able to carry a concealed firearm on campus
(1) Strongly Disagree
(2) Somewhat Disagree
(3) Somewhat Agree
(4) Strongly Agree

Appendix D

Demographic Information

1. Which option best represents your affiliation the University of Montana?

(1) Freshman (Undergraduate)
(2) Sophomore (Undergraduate)
(3) Junior (Undergraduate)
(4) Senior (Undergraduate)

2. With which college are you affiliated?
(1) University of Montana (Missoula Campus – 4 year degree)
(2) University of Montana (Missoula College – 2 year degree)

2. With which department are you affiliated at University of Montana? (If you have not yet selected a major, for which class are you completing this survey?) _____

3. What is your age? (in years) _____

4. With which gender do you currently identify?
(1) Man
(2) Woman
(3) Non-binary
(4) Gender fluid
(5) Gender queer
(6) Two-spirit
(7) Prefer not to answer
(8) Prefer to self-describe____ _____

5. When describing the participants in this study, should we include you in a group that is trans/transgender?
(1) Yes
(2) No

6. In which state is your hometown? (If you moved frequently, where did you spend the majority of childhood?) _____

7. Which option best represents your political affiliation?
(1) Conservative
(2) Somewhat Conservative
(3) Moderate
(4) Somewhat Liberal
(5) Liberal
(6) Other

8. Which option best describes your current housing situation?
(1) On campus
(2) Off campus

9. What is your race/ethnicity? (select all that apply):
(1) White
(2) Black or African descent
(3) Native American/Indigenous or Alaska Native
(4) Asian
(5) Native Hawaiian or Pacific Islander
(6) Middle Eastern or North African
(7) Hispanic, Latino, or Spanish origin
(8) Prefer not to answer
(9) Please self-describe: _____

10. Have you ever served in the U.S. military or the military reserves?
(1) Yes
(2) No

11. Were there firearms in the household in which you grew up?
(1) Yes
(2) No

12. What is your experience firing a gun?
(1) No experience
(2) Experience

12a. What is your current gun ownership status?
(1) Yes, I currently own a firearm
(2) No, I currently do not own a firearm

Participants who answered YES to the owning a gun will receive the following item:
12b. Select one response that best represents your purpose for owning a firearm:
(1) Protection (to protect myself and/or others)
(2) It is my Second Amendment right
(3) For recreation (e.g., hunting, sport, collector's items)
(4) Other (please specify) _____
(5) I currently do not own any firearms

Appendix E

Scoring and Coding Guide for Perceptions of Safety

Questions that measure Perceptions of Safety:
1. In general, how safe do you feel while you are on campus grounds?
2. How safe do you feel on campus during the day?
5. How safe do you feel when you are attending a class on campus?

The Perceptions of Safety Score was calculated by assigning:
1 for Very Unsafe
2 for Moderately Unsafe
3 for Neither Safe nor Unsafe
4 for Moderately Safe
5 for Very Safe

Scores were totaled for Questions, 1, 2, and 5.
The lowest possible response was 3 for Very Unsafe.
The highest possible response was 15 for Very Safe.

Scoring Guide 1:
Score 3 to 4: Very Unsafe (Recoded as 1)
Score 5 to 7: Moderately Unsafe (Recoded as 2)
Score 8 to 10: Neither Safe nor Unsafe (Recoded as 3)
Score 11 to 13: Moderately Safe (Recoded as 4)
Score 14 to 15: Very Safe (Recoded as 5)

Scoring Guide 2:
Score 3 to 7: Unsafe (Recoded as 1)
Score 8 to 10: Neither Safe nor Unsafe (Recoded as 2)
Score 11 to 15: Safe (Recoded as 3)

Scoring Guide for Inclusion of Q3 (Safety at Night):
1. In general, how safe do you feel while you are on campus grounds?
2. How safe do you feel on campus during the day?
3. How safe do you feel on campus at night?
5. How safe do you feel when you are attending a class on campus?

The Perception of Safety Score (including night) was calculated by assigning:
1 for Very Unsafe
2 for Moderately Unsafe
3 for Neither Safe nor Unsafe
4 for Moderately Safe
5 for Very Safe

Scores were totaled for Questions 1, 2, 3, and 5.
The lowest possible response was 4 for Very Unsafe.
The highest possible response was 20 for Very Safe.

Scoring Guide 1:
Score 4 to 6: Very Unsafe (Recoded as 1)
Score 7 to 9: Moderately Safe (Recoded as 2)
Score 10 to 14: Neither Safe nor Unsafe (Recoded as 3)
Score 15 to 17: Moderately Safe (Recoded as 4)
Score 18 to 20: Very Safe (Recoded as 5)

Scoring Guide 2:
Score 4 to 8: Unsafe (Recoded as 1)
Score 9 to 14: Neither Safe nor Unsafe (Recoded as 2)
Score 15 to 20: Safe (Recoded as 3)

Appendix F

Cramer's V and Degrees of Freedom for a Chi-Square Test of Independence

Cramer's V (Computed using R software)

```
> table=matrix(c(134, 26, 7, 0, 77, 23, 4, 2, 25, 19, 10, 8, 71, 26, 9, 8, 126, 48, 13, 15), nrow=4)
> table
     [,1] [,2] [,3] [,4] [,5]
[1,]  134   77   25   71  126
[2,]   26   23   19   26   48
[3,]    7    4   10    9   13
[4,]    0    2    8    8   15
> library(rcompanion)
> cramverV(table)
Cramer V
  0.1614
```

Degrees of Freedom for a Chi-Square Test of Independence

df = (R – 1) * (C - 1)

df = degrees of freedom

R = Row

C = Column

H1: (2 – 1) * (5 – 1) = 4 df

Row (position on campus carry): 2 variables
(1) Yes
(2) No

Column (perception of safety): 5 variables
(1) Not at all safe
(2) Somewhat unsafe
(3) Neither safe nor unsafe
(4) Somewhat safe
(5) Very safe

H2: (2 – 1) * (4 – 1) = 3 df

Row (position on campus carry): 2 variables

(1) Yes
(2) No

Column (anxiety): 4 variables
(1) Minimal anxiety
(2) Mild anxiety
(3) Moderate anxiety
(4) Severe anxiety

H3: (5 – 1) * (4 – 1) = 12 df
Row (perception of safety): 5 variables
(1) Not at all safe
(2) Somewhat unsafe
(3) Neither safe nor unsafe
(4) Somewhat safe
(5) Very safe

Column (anxiety): 4 variables
(1) Minimal anxiety
(2) Mild anxiety
(3) Moderate anxiety
(4) Severe anxiety