

The Relationship of Suicides, Guns and Mass Shootings in the United States: An Ethical Dilemma

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Abstract

Suicides have been a reality of life due to many factors across nations. In the United States alone, about 30,000 to 40,000 individuals are likely to take their own life this year. During the Covid-19 Corona virus months, telephone calls to the suicide hotlines in the United States have increased significantly. As such, suicide is a huge, complex and costly problem in our society even when people are not dealing with a pandemic like Covid-19 and racial inequalities. In this study, we look at the relationship between suicides, guns and mass shootings based on age, gender and ethnicity, using data of 3,238-recorded suicides in South Florida's Broward County. Through a review of descriptive data and regression analysis, we found that the top three methods of suicide are gunshot, asphyxiation, and hanging. Gunshot represents the largest majority of all suicides. In addition, there are statistically significant differences in suicides based on age, race, and gender. Overall, this article provides literature, reflections of morality, and some common reasons for suicides, while also offering reflective data on the epidemic of mass shootings during the past few decades, where the method used was entirely by the usage of various types of guns, assault rifles and military-grade artillery. Finally, we discuss the implications of our findings along with specific recommendations for policy makers to prevent suicides and mass shootings in the future. Some acts of violence and suicide might be caused by illnesses or mental health issues, but most are caused by intentional acts of perpetrators due to misunderstandings, stereotypes and unnecessary aggressive behaviors. In the modern society, we see that millions of people in the United States and many other countries around the world are protesting against police violence which are disproportionately and negatively impacting minority groups. Today, we see both children, adults and even official police officers who are showing aggressive behavior which have become a concern as such behaviors are often reinforced over and over again through television and social media. If such behaviors become normal then we need better coping strategies to effectively deal with them because violence only begets more violence, which increases poverty in the society. For most adults, being stuck in poverty through societal inequities, despite their persistent hard work and efforts, can cause depression which might lead to further protests and suicides. It is recommended that policy makers and professionals work to stop unmanageable and aggressive behaviors at an earlier stage of a person's life because it helps prevent problems in the future. If we do not effectively deal with aggression, violence, and ineffective use of guns, this could lead to more problems on the job, suicides, mass shootings, and/or other crimes in general. This article discusses the root of the suicide problem based on empirical analysis, while also offering recommendation for educators, researchers, and policymakers.

Keywords: suicide, gunshot, mass shooting, asphyxiation, hanging, Broward County, Florida, subtle suicide, theory of reason action (TRA), ethical emotism.

JEL Classification: F10.



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Introduction

Suicide is the fatal or self-inflicted destructive behaviors with the expressed or inferred intent to kill oneself, end life, and/or to die. While most suicides are self-directed, meaning only the person initiating it dies, some perpetrators purposely cause mass casualties as part of the process or due to their vengeful and political ideologies. For example, there was the Germanwings Flight 4U 9525 crash on March 2015, where the co-pilot killed himself and 144 passengers by taking the plane down over the French Alps at the City of Nice. Among so many other cases, there is the example of Timothy James McVeigh, who killed 168 people and injured 680 others in the Oklahoma City bombing during 1995 as a form of revenge against the federal government for their Waco siege in 1993 that caused the deaths of 86 men, women, and children. Let us first look at the prevalence of suicides.

It is a fact that at least 30,000 people in the United States of America die each year due to suicide, making it the 10th leading cause of death for all ages, and the estimated cost in lost annual income is about 11.8 billion dollars. During the 1980s and 1990s, over 200,000 more people died of suicide, compared to those who died of the AIDS epidemic. Globally, around one million people die from suicide; just in Ukraine, which has a population of about 50 million, over 14,000 people commit suicide each year due to various situational and/or perceptibly unbearable factors (Goldsmith, Pellmar, Kleinman, and Bunney, 2002). According to Church and Brooks (2009), factors such as psychological, psychosocial, and cultural are important elements in determining the risks of suicide, but they cannot always predict it. As such, suicide cannot always be predicted with a high level of certainty. Unfortunately, suicide is not just a local tragedy. Suicide is a national and global sad phenomenon as can be witnessed from so many headlines and publications around the world (Aurora Beacon-News, 2019; Cavico and Mujtaba, 2020; Dwivedi, 2012; Joiner, 2005; Lamothe, 2015; Gun Control, 2019; Lampen & Lampen, 2016; Marcotte, 2018; Nock, Borges, and Ono, 2012; Pan, 2019; Kansas Shooter, 2016; Van Orden, Wiktorsson, Duberstein, Berg, Fässberg, & Waern, 2015).

Suicide has been associated with early-life traumatic and adverse events as well as with stressful, emotional bullying and unethical experiences that people go through in life (Cavico, Mujtaba, Lawrence and Muffler, 2018; Mujtaba, 2011). During the Vietnam war, four time more Americans died of suicide than from military injuries or combat (FOX News, 2018). In 2019, it is reported that more veterans in the United States committed suicide compared to the general population, possibly because they often have more knowledge and skills of how to use deadly weapons. Besides those who have mental disabilities and veterans who may have witnessed traumatic events, the elderly group is also at high risk for suicide. Furthermore, traits of aggression, impulsivity, anger, and neuroticism are likely to be positively related to suicide. Traits of aggression and impulsiveness are more associated to suicide in adolescent and juvenile individuals. Adult suicides and some cases of mass shootings in the United States can be linked to persistent, subtle and sudden expressions of aggression, impulsiveness, prejudiced or biased thinking, bigotry, superiority complex, narrow-mindedness, chauvinism, and various forms of life's stressful events such as losing a loved one, losing one's job, not having sufficient income to take care of one's parents, failing at school or important professional assignments, and other such factors. However, we also know that "Suicide may have a basis in depression or substance abuse, but it simultaneously may relate to social factors like community breakdown, loss of key social relations, economic depression, or political violence. Indeed, it may be that emotional states like hopelessness and impulsiveness link these different levels of human experience" (Goldsmith, Pellmar, Kleinman, and Bunney, 2002, p. ix-x).

Suicide is a global challenge for people in all countries. For example, while about 90% of suicides in the United States are associated with mental illness; Chinese data demonstrate that less than 50% of suicides have such a correlation (Goldsmith, Pellmar, Kleinman, and Bunney, 2002). For Americans, Mexicans, and even Greeks, about 3 to 5 times more men commit suicide compared to females. In most Asian countries, the gap is much narrower. However, in China, more women than men commit suicide but the gap has been narrowing in the past few decades. Eastern European countries tend to have about 5-6 times more suicides than the United States (Goldsmith et al., 2002, p. 39).

While suicide and cases of mass shootings might at times be due to a medical, physical, or mental issue, it can also be due to political factors. The political nature of suicide and various acts of violence can be observed from the protests of prisoners who stop eating, actions of those who burn themselves to make a point, and terrorists who kill themselves while hurting others through mass shootings.

Currently, people around the world are facing the challenge of Covid-19 pandemic since the start of 2020 which has caused undue stress and some health problems for those who are severely impacted by it. About 14 million people across the globe are infected by this Covid-19 coronavirus and over 600,000 people have already died from the complications associated with this illness. Just in the United States of America, we have about 4 million confirmed cases of infections and over 140,000 deaths as of July 2020 over the previous five months. And, these infectious diseases are considered a continuing major threat to workers' physical, financial, and mental health which can increase suicide rates. Covid-19 has become a major health concern around the globe due to its challenging health problems and high mortality rates (Gössling, Scott, & Hall, 2020). According to *The Washington Post* article,

The novel coronavirus — once concentrated in specific cities or countries — has now crept into virtually every corner of the globe and is wreaking havoc in multiple major regions at once. But the impact is not being felt evenly. Poorer nations throughout Latin America, the Middle East, South Asia and Africa are bearing a growing share of the caseload, even as wealthier countries in Western Europe and East Asia enjoy a relative respite after having beaten back the worst effects through rigorously enforced lockdowns (Witte, Sheridan, Slater, and Sly, 2020, para. 3-4).

We know that the lockdown mitigation rules coupled with a long traumatic exposure to Covid-19 infection may increase the risk of being infected with this coronavirus, which further increases poverty and suicide rates (Wu, Fang, Guan, Fan, Kong, Yao, Lu, 2009). As such, it is the responsibility of all professionals and policy makers to make sure everyone remains in good health (Mujtaba and Cavico, 2014) in order for them to keep the economy and society running smoothly. In the following pages, we discuss the literature about suicides along with the hypotheses, methodology, findings, and recommendations.

Literature review

Data shows that suicide in the U.S. was the tenth leading cause of death (Centers for Disease Control and Prevention - CDC, 2013). In the year 2013, there were 41,149 suicides in the U.S., which equates to about one person killing himself or herself every 13 minutes. From 1986 to 2000, suicide rates in the U.S. dropped from 12.5 to 10.4 suicides deaths per 100,000 people. Over the next 12 years, however, the rate increased, and, by 2013, it stood at 12.6 deaths per 100,000. Based on suicide data from 16 National Violent Death Reporting Systems, in 2010, 33.4 percent of suicide decedents (or deceased individuals) tested positive for alcohol, 23.8 percent for antidepressants, and 20.0 percent for opiates, including heroin and prescription painkillers. In 2013, firearms were the most common method of suicide, accounting for 51.4 percent of all suicide deaths. The next most common methods were suffocation (including hangings) at 24.5 percent and poisoning at 16.1 percent. In the year 2015, the economic cost of suicide death in the U.S. was estimated at \$51 billion in combined medical and work loss costs (CDC, 2019).

Van Orden and colleagues (2010) state that suicidal behavior has received relatively little empirical attention. The purpose of this study is to reflect on the rate of suicide and its causes, especially based on actual data from South Florida's Broward County region.

Suicide Epidemic in the United States

During 2016, around 45,000 American lives were lost to suicide in the United States; this is about 15 people for every 100,000 citizens (Scutti, 2018). Similarly, data shows that during 2017, there were about 47,173 recorded suicides in the United States of America. Overall, it is estimated that suicide rates increased by about 25% in the United States during the past two decades as per the data provided by the US Centers for Disease Control and Prevention. About one-quarter of the American states had a rise in suicides by more than 30%. Moreover, over 50% of those who committed suicide in 2016 had not been diagnosed with any mental disabilities or other such health issues. Consequently, suicide is one of the top ten causes of death for Americans, and it is increasing. The other two top causes of death that are on the rise are Alzheimer's disease

and drug overdoses (Scutti, 2018, para. 5). Of course, these findings and data should be saddening and disturbing to all policymakers and government leaders.

According to Spicer and Miller (2000), data on suicides from eight American states had a mean of 11 suicides and 119 attempted suicides per 100,000 residents per year. Those residents with high attempted suicide rates included teenagers, young adults, women, Blacks (15 to 44 years), and Whites (25 years to 44 years). They found that poisoning and firearm were the most common methods used among those attempting suicide and that firearm was the most lethal method. To conduct an analysis of suicide rates in South Florida's Broward County, using available data from the medical examiner's office, we propose the following hypotheses:

- *Hypothesis 1:* Most suicides are executed using a gun compared to other methods.

Kessler and colleagues (2005) found no significant change for suicide ideation, plans, gestures, or attempts. They conclude that despite a dramatic increase in treatment, no significant decrease occurred in suicidal thoughts, plans, gestures, or attempts in the United States during the 1990s.

Kposowa and McElvain (2006) found that women were over 73 percent less likely than men to use a firearm to commit suicide. There were no gender differences in hanging. Female victims were over 4 times more likely to die from drug poisoning than male victims. Victims killing themselves at home were over 2.5 times as likely to use firearms as those dying in outdoor settings. Furthermore, persons committing suicide at home were over 3 times more likely to hang themselves than those killing themselves outdoors, which includes railway tracks. Victims committing suicide at home were also 3 times as likely to use drugs as those dying outdoors or on railway tracks. Hotel or motel suicides were 4.9 times more likely to use drug poisoning than outdoor or railway suicides. Women were just as likely to hang themselves as men. Furthermore, firearm use was the second mode of suicide among women. In terms of overall policy implication, Kposowa and McElvain (2006) recommend that suicide prevention efforts should concentrate not only on dissuading potential suicide victims, but also limiting access to firearms and promoting responsible firearm storage practices. To conduct an analysis of suicide rates in South Florida's Broward County, using available data from the medical examiner's office, we propose the following hypotheses:

- *Hypothesis 2:* Males are more likely to commit suicide compared to females.

Agrawal, Waggle, and Sandweiss (2017) found that suicide rates correlated with the gross domestic product growth rate (negatively associated; where a -0.25 percent drop in the rate of change in annual suicides for a +1 percent change in the growth rate); unemployment rate (positive link; 0.298 percent increase); inflation rate (positive link; 0.169 percent increase in suicide rate levels); and stock market returns adjusted for the risk-free T-bill rate (negative link; -0.047 percent drop). Suicides tended to rise during periods of economic turmoil, such as the financial recession of 2008 in the United States of America. They found that suicides and murder-suicides associated with adverse market sentiment lag the initial stressor by up to two years, thus opening a policy window for government/public health intervention to reduce these negative outcomes.

Another study by Steele and colleagues (2018) concluded that the predictors of suicide in young people tend to be insomnia, burdensomeness, and conflicts with family or a romantic partner. Adults had a great risk of suicide if they were males; if they had substance abuse problems; and/or if they had marital or job loss. Elderly people were at higher risk of suicide if they had multiple medical ailments simultaneously (comorbidities), hopelessness, and isolation. They suggested that all people should be screened for access to firearm.

More recently, according to the American Foundation for Suicide Presentation, there were an estimated 1,400,000 suicide attempts in 2017, and over 47,000 Americans were successful. They also mention that in 2015, "suicide and self-injury cost the United States about \$69 billion (American Foundation for Suicide Presentation, 2019, p. 1). Of course, the numbers could be much higher as there is the stigma surrounding suicide, which leads to underreporting. Figure 1 shows that the suicide rate in Florida was about 14 per 100,000 individuals during 2008, and it has stayed stable; however, the overall rates have increased during the past decade in the United States from 11 in 2008 to about 14 individuals per 100,000 in 2017.

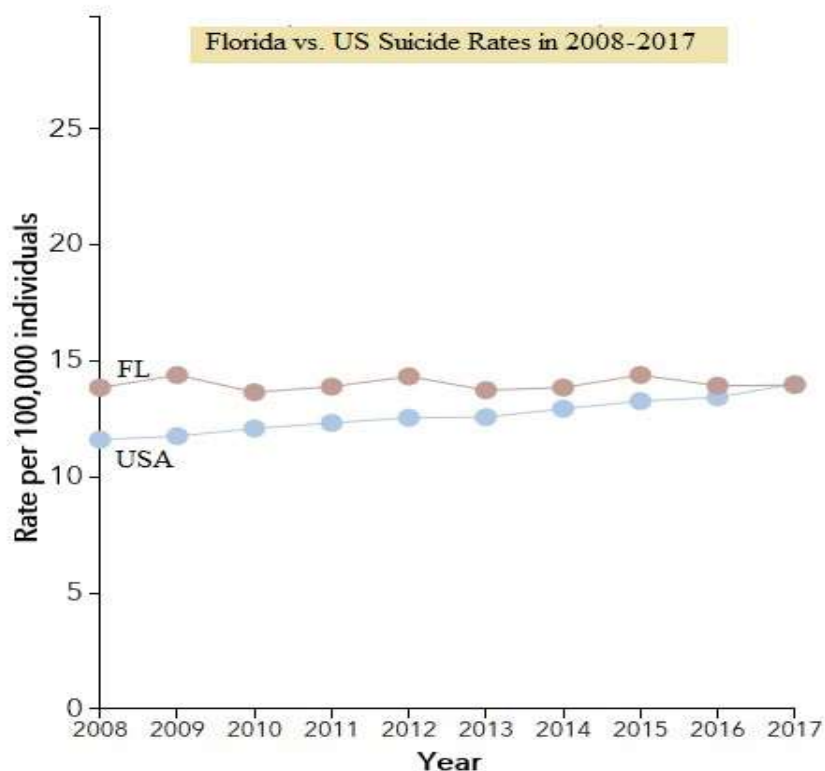


Figure 1. Suicide Rates in Florida compared to the United States

Source: American Foundation for Suicide Presentation, 2020.

Florida Suicide

Real and perceived pressures do lead strong and talented individuals of all ages and races toward suicide in all nations and locations, and Florida is no exception. For example, recently, a rising football star teenager named Bryce Gowdy, 17 years old, died on January 1, 2020, by suicide had supposedly been under enormous psychological pressure as was taking care of his mother and siblings while having the opportunity to move to Atlanta for college. Bryce Gowdy was killed when he was struck by a freight train shortly after 4 a.m. in Deerfield Beach, north of Fort Lauderdale. The medical examiner's office ruled the death a suicide. Bryce was a young student-athlete that planned on going to Georgia Tech in Atlanta on a full scholarship but may have been experiencing cognitive dissonance as he reportedly struggled with leaving his family behind since he perceived himself as the head of the household (Burke, 2020).

Castellanos, Kosoy, Ayllon, and Acuna (2016) examined the association between the presence of drugs and alcohol at the time of suicide in Hispanic versus non-Hispanic youth suicide victims in Miami-Dade County, Florida. Hispanic youth in Miami-Dade County were 1.62 times more likely than non-Hispanic youth to have used drugs and alcohol at the time of suicide. Firearm use was significantly associated with drug and alcohol use at time of death. Hence, the use of drugs and alcohol were important risk factors for suicide in Hispanic youth. To conduct an analysis of suicide rates in South Florida's Broward County, using available data from the medical examiner's office, we propose the following hypotheses:

- *Hypothesis 3:* Whites are more likely to commit suicide compared to others.

During 2018, Florida had 3,552 suicides (17.0 per 100,000 or almost 10 per day). In 1999, suicides were 2,068 (almost 6 per day), implying a significant increase from 1999 to 2018. In Broward County, during 2018, there were 260 suicides (13.7 per 100,000 or 0.71 per day) compared to 184 suicides (10.9 per 100,000 or 0.50 per day) in 1999. This is also a significant increase from 1999 to 2018 (Florida health, 2019). Our study and data in this research focuses on Broward County, Florida, which can be seen as a microcosm of the entire United States of America due to its diverse population and economic affluence.

Cohen, Llorente, and Eisdorfer (1998) studied homicide and suicide in older and younger persons in West Central Florida and Southeastern Florida, focusing on spousal / consortial homicide-suicide. Annual incidence rates ranged from 0.3 to 0.7 per 100,000 for persons under age 55 and from 0.4 to 0.9 per 100,000 for persons age 55 and older, with higher rates in the older group every year but two. Cases of spousal / consortial homicide-suicide were common in both younger and older age groups.

Davis (1999) studied suicidal drowning in South Florida. Between July 1994 and June 1998, there were 267 drownings, and 873 people committed suicide in Broward County, Florida. Of the total drownings, 25 were suicidal drownings, representing 2.86 percent of all suicides. When considering suicide in the age group of 65 years and older ($n = 239$), which accounted for 19.8 percent of the population and 27.4 percent of all suicides, drowning represented 6.7 percent of all suicidal deaths. Drowning for females within this age group represented the third most common form of suicidal death (13.8 percent). The presence of alcohol or other drugs was less usual in elderly suicide victims than in younger victims. Of the 25 drowning suicides, swimming pools, canals, and lakes were common locations of choice.

Lee, Delcher, Maldonado-Molina, Thogmartin, and Goldberger (2016) found that annual drug-related fatalities increased by 57 percent from 2001 to 2013, with suicide being 20 percent of total deaths. They also found that those over 55 years were more likely to die of natural methods. Those under 35 years, who used central nervous system (CNS) stimulants, including amphetamines and cocaine, showed higher relative risks for accidental death and homicide. Those under 35 years using CNS depressants, including benzodiazepines, carisoprodol, opioids, and zolpidem, were more strongly associated with accidental death and/or suicide. To conduct an analysis of suicide rates in South Florida's Broward County, using available data from the medical examiner's office, we propose the following hypotheses:

- *Hypothesis 4:* Older individuals are more likely to commit suicide than the younger group.

Johnson, Woodside, Johnson, and Pollack (2017) identified twenty-four high risk and twenty-five other risk clusters. Risk of suicide was 3.4 times higher in high-risk clusters than in all other clusters. Low-risk clusters were related to a 30 percent to 94 percent decrease in risk of suicide. Locations with high concentrations of elderly and single households were more likely to be in the high-risk clusters. Low-risk clusters tended to include areas with higher population density and economic deprivation.

Regardless of the location, gender, age, or race factors, suicidal decisions are influenced by a person's emotions and perceptions of what is right, wrong, or even shameful in a given society or time. While it is impossible to understand exactly why a specific individual might commit suicide, it is reasonable to reflect on the rationale and moral implications of suicidal behaviors. As such, next, we focus on the theory of reasoned action and ethical emotism.

Theory of Reasoned Action

Over the past few centuries, academicians have studied the influence of attitude on behavior in the field of Social Psychology through the theory of reasoned action. The theory of reasoned action (Ampofo, 2006; Ajzen and Fishbein, 1980, p. 62) emphasizes that a person's behavior is usually determined by his/her intention to perform the behavior and that this intention is, in turn, a function of his/her attitude toward the behavior and any subjective norms. The Theory of Reasoned Action (TRA), according to Brown (1999), has the following purposes:

1. To predict and understand motivational influences on behavior that an individual has free control over (free will).
2. To identify when and how to target strategies to change behavior.
3. To explain any human behavior and its purpose.

Importantly, the theory of reasoned action makes several key assumptions about the rationality and use of all available information by the decision-maker. It also assumes that rational decision-makers evaluate the outcomes of a particular behavior before they decide to engage or not to engage in suicidal behavior (Dahlin, 2000, Ajzen and Fishbein, 1985, Brown, 1999). These assumptions are valid in the cases of people who do not want to go to prison, consequently, they tend to avoid action that are legally considered criminal behavior (Ampofo, 2006). Furthermore, this theory does not apply to habitual, irrational, and unconscious behaviors.

The theory assumes that behavior is under volitional control (free choice; will power to determine), and thereby consciously thought of beforehand (Ampofo, 2005). Furthermore, another element is that some intentions never become behaviors that are sustained over time. In other words, some suicidal thoughts, actions and behaviors can be overcome by more favorable situational variables and circumstances, thereby preventing an actual suicide. Of course, an important limitation is that people may believe that they have little or no control over their behaviors and attitudes (Brown, 1999). In addition, it has been mentioned that human beings act situationally and are likely to vary their behavior under different circumstances based on their feelings or emotions and that TRA does not explain such variations (Ampofo, 2005; Ajzen, Timoko, and White, 1982).

Ethical Emotism and Morality

Individuals have their own set of values that guide their personal and professional decisions. People form these values, in part, during the socialization process. Socialization is the process by which people learn the norms of a culture or society so they can effectively function within it (Mujtaba and Sims, 2006). Ethical emotism is a theory of ethics grounded on the feelings and emotions of human beings. The theory assumes that moral judgments are based on the feelings and emotions of the people making the judgments. Displays of emotion, such as "suicide is wrong," and "being poor but alive is good" are moral determinations that each person can make in any given situation.

Hume (1957) believed that morality is based on sentiments and feelings of individual decision-makers. In other words, morality is ascertainable when a person attends to his/her own emotional reactions to situations where one assigns "good" and "bad" as moral norms. According to Hume, morality is perceived by means of some emotional impression or sentiment that enables one to distinguish between right and wrong.

Ethical emotists tend to deny that moral decisions are derived from reason; and they deny that morality and immorality are properties of actions themselves, independent of one's feeling toward them (Cavico and Mujtaba, 2013). To perceive an act as right or wrong is merely to have feelings of approval or disapproval toward it. An act of suicide is deemed moral for the emotion that inspires and approves it. A person's feelings of approval and disapproval determine one's moral judgments and not rationally determined norms. As such, ethical emotism is a subjective attack on a rationalistic ethics that places reason in the prime position in determining morality. Consequently, morality is not cognitive, but emotional. Each person's moral expression is equally right because it is based on his or her personal feelings that are derived from his/her values and years of socialization in a given society.

If a person sincerely feels it is good and right to commit suicide, then, for that person, it is moral to do so. Another person's feelings may tell him or her that suicide is immoral. Based on ethical emotism, both of these feelings are correct. Thus, one cannot tell another person what is right or wrong, what moral beliefs to accept or reject, or how to live one's life. Of course, a limitation is that a person's feelings may be the irrational results of selfishness, prejudice, or years of social and cultural conditioning based on misinformation.

Since human beings are reflective and learning agents, people learn, change their minds, and can have different feelings at different times; as such, ethical emotism can be seen as a relativistic ethical theory. At one time, one may have felt one way about an action or person; now, the person may feel another way. Perhaps one once felt that suicide was wrong, and now, because of enormous financial debts and emotional pain, one feels it is right. Can one change one's moral judgments by simply changing one's feelings? The answer is yes, according to ethical emotism, as a person can choose to express a different feeling about an action.

An inherent limitation is that if ethics is merely the expression of feelings and emotions, then moral disagreements about suicide cannot be solved. Since reason does not play any significant role in moral inquiry and justification, people can argue without necessarily reaching any moral agreement. Consequently, ethical emotism can be categorized as an obstruction to discovering any moral truth.

Although there is an irreducible element of emotion in moral decisions, a moral judgment is more than just the expression of strong feelings. An individual must organize his or her feelings into some coherent whole of reasoned preferences that can withstand rational scrutiny of other human beings.

Hume and the ethical emotists may provide an account of what people actually approve as good, but they cannot account for what is really good (Cavico and Mujtaba, 2013); as such, decisions of suicide are often

driven by one’s own free will, strong emotions at any given time, and moral determination. Next, we discuss the methodology and results of our data analysis to see how people in Broward County committed suicide and whether age, gender, and ethnicity are statistically significant factors.

Methodology

For this paper, we used the 3,238 suicides data (from the years 2000 to 2013), which was available through the last authors’ personal connection with the Broward Medical Examiners’ Office. The variables included in the data are methods of suicide, demographic characteristics, and locations within the county.

We use the suicide methods classification provided by the Broward Medical Examiners’ Office. The suicide approaches for our study include gunshot, asphyxiation, hanging, combined drug toxicity, toxicity, multiple blunt trauma, drowning, overdose, combined drug overdose, intoxication, carbon monoxide intoxication, blunt trauma, drug intoxication, multiple drug intoxication, drug overdose, drug toxicity, and other methods, which had few cases of suicides. Demographic variables include age, race, and gender. Race includes Whites, Blacks, Hispanics, and Asians. Time variables include day-of-the-week, day-of-the-month, month-of-the-year, and year.

Descriptive statistics are provided for all the variables. Correlation analysis is done to see if there are any variables that are highly correlated to cause multi-collinearity problems in the regression analyses. Multiple regression estimation is done with each of the methods of suicide as the dependent variable. The independent variables are the demographic and time variables.

Descriptive Results

Descriptive statistics were analyzed for the methods of suicide, and the demographic variables, such as age, gender, age, and ethnicity. From 2000 to 2013, there were 3,238 suicides recorded (approximately 230 per year) in Broward County (Table 1). The top five main methods of suicide during this fourteen-year period are: 1) gunshot, with 1,356 cases (42%) of total cases; 2) hanging, with 340 cases; 3) asphyxiation also with 340 cases; 4) combined drug toxicity with 215 cases; and 5) toxicity, with 155 cases. Gunshot is by far the most common method for suicide (4 of every 10 suicides). This finding is similar to those of Spicer and Miller (2000) and Miller, Swanson and Azrael (2016). In addition, the top five methods of suicide account for 78.9 percent of all suicide cases, implying a high concentration of suicide methods.

Table 1. Suicides in Broward County, Florida

| Suicide Methods | Total | Percent (%) |
|-------------------------------|-------|-------------|
| <i>Gunshot</i> | 1,356 | 41.88 |
| <i>Asphyxiation</i> | 340 | 10.50 |
| <i>Hanging</i> | 340 | 10.50 |
| <i>Combined Drug Toxicity</i> | 215 | 6.64 |
| <i>Toxicity</i> | 155 | 4.79 |

Source: authors’ data analysis.

As can be seen in Table 1, data shows that the first hypothesis, “*Most suicides are executed using a gun compared to other methods*” is supported.

In the Broward County data, there were 2,412 (75%) males and 826 (25%) females who committed suicide. The hypothesis “*Males are more likely to commit suicide compared to females*” is supported (see Table 3). We also know that significantly more males commit suicide from gunshot than do females. This study’s data shows that men have a higher level of suicides from asphyxiation than do women. We also know that males commit suicide by hanging more than do females. Furthermore, we found that females commit suicide from combined drug toxicity more than do males. Our findings are similar to previous research, since a much higher percentage of male suicides was found by Kposowa and McElvain (2006). The top five methods for males are gunshot (46.6 percent), asphyxiation, hanging, combined drug toxicity, and multiple blunt trauma. Gunshot is approximately 50 percent of all suicides for males. The top five methods for females are gunshot (28.1 percent), combined drug toxicity, toxicity, hanging, and asphyxiation. Our research supports previous findings as Kposowa and McElvain (2006) found that men are much more likely to commit suicides by firearm than do females.

In terms of age, descriptive statistics show that suicides range from 9 years to 99 years with a mean, median and mode of 49 years. For race, as can be seen in Table 2, White Americans make up 85 percent (2,760 cases) of the total number of suicides in Broward County, followed by Black Americans with 8.5 percent (275 cases), Hispanic Americans with 5 percent (164 cases), and Asian Americans with 1 percent (32 cases). The hypothesis “*White are more likely to commit suicide compared to others,*” is supported as 85% of reported cases were people of White ethnic background. However, as can be seen from the regression results (Table 3), the independent variable, race, is not significant when it comes to using gunshot, since this method is the number one choice for all four racial groups studied. Therefore, the reason why the race variable is not significant is that gunshot is the number one method of suicide for all races (Whites, Hispanics, Blacks, and Asians). Hence, there is no racial differences in gun usage. However, we did find statistically significant differences in several other methods of suicide based on race, other than gunshot.

Table 2. Suicides by Ethnicity in Broward County

| Race | Frequency | Percent (%) |
|-----------------|-----------|-------------|
| White | 2,760 | 85.29 |
| Black | 275 | 8.50 |
| Hispanic | 164 | 5.07 |
| Asian | 32 | 0.99 |
| Other | 5 | 0.15 |
| American Indian | 2 | 0.06 |
| Total | 3,238 | 100.00 |

Source: authors’ data analysis.

The top five methods of suicide for White Americans are gunshot (42.2 percent), asphyxiation, hanging, combined drug toxicity, and toxicity. For, Black Americans, the top five methods are gunshot (42.9 percent), hanging, asphyxiation, drowning, and multiple blunt trauma. For Hispanic Americans, the top five methods are gunshot (36.0 percent), asphyxiation, hanging, other methods, and multiple blunt trauma. For Asian Americans, the top five methods are gunshot (34.4 percent), hanging, asphyxiation, combined drug toxicity, and other methods. In addition, we found that significantly more Blacks, Hispanics, and Asians commit suicides by hanging more than do Whites. Overall, gunshot is the number one method of suicides in Broward County for all racial groups.

As can be seen in Table 3, the last hypothesis “*Older individuals are more likely to commit suicide than the younger group*” is supported. Therefore, the results imply that older people commit suicide from gunshot more than their younger counterparts do.

Table 3. The Relationship of Gunshot Suicide and Demographic Variables

| Dependent Variable | Intercept | Age Group | Asian | Hispanic | Black | Gender | R Square |
|--------------------|-----------|-----------|--------|----------|-------|----------|----------|
| Gunshot | 18.854*** | 0.017*** | -0.038 | -0.041 | 0.023 | 0.144*** | 0.025 |
| p-values | 0.000 | 0.000 | 0.653 | 0.284 | 0.451 | 0.000 | |

Source: authors’ data analysis.

Notes: ***statistically significant.

Overall, using available data, we found that most of the suicide victims are men as males and females make up 75 percent and 25 percent, respectively, of total suicides. We found that gunshot is the number one cause of suicide, followed by asphyxiation and hanging; and that older people have a significantly higher rate of suicide than their young colleagues do. White Americans make up the largest percentage of the total number of suicides in Broward County.

The top five methods of suicide for males are gunshot, asphyxiation, hanging, combined drug toxicity, and multiple blunt trauma. The top five methods for females are gunshot, combined drug toxicity, toxicity, hanging, and asphyxiation. Gunshot is responsible for approximately 50 percent and 30 percent of suicides for males and female, respectively.

The top five methods of suicide for White females are gunshot, combined drug toxicity, toxicity, asphyxiation, and drowning. For Black females, the top five methods are gunshot, hanging, toxicity, asphyxiation, and drowning. For Hispanic females, the top five methods of suicide are gunshot, hanging, asphyxiation, toxicity, and drug intoxication. For Asian females, the top five suicide methods are hanging, asphyxiation, combined drug toxicity, combined drug overdose, and drowning. This study has confirmed that the number one method of suicide is gunshot for White, Black, and Hispanic females, and hanging for Asian females.

Regardless of the method, reason or rationale, some suicidal thoughts develop in subtle and predictable ways over time. As such, next we focus on better understanding the subtle forms of suicide.

Subtle Suicide

Suicidal behavior can be seen as anything that reduces a person's lifespan while eventually ending it. Such behaviors negatively affect the quality of one's life and those of one's family members, while also shortening lifespan as it will come to an end sooner than natural death.

Subtle suicide is the "pattern of self-destructive feelings, thoughts, and behaviors that take place over a substantial period of time and significantly reduce the quality and possibly the length of one's life" (Church and Brooks, 2009, p. 7). On a continuum from left to right, subtle suicide is between self-damaging behaviors (far left) and overt suicide (far right) where a person kills himself or herself. Subtle suicide can stem from a continuation or cycle of self-defeating behaviors, which cause a cascading downward spiraling effect. For example, when a person only sees negativity or hopelessness in his/her life, they may penalize themselves for being the main cause of it. As such, they may not see an outlet to get out of it or may feel that it is too late for them.

Subtle suicide happens when a person is showing a stable, habitual pattern of behaviors that appear to be self-destructive immediately or in the near future. Several popular examples of people who might fit the definition of subtle suicide are people like Anna Nicole Smith, Marilyn Monroe, Evel Knievel, American signer Jim Morrison, Robbin Williams, and others. Subtle suicide victims often stay in what is known as the "dead zone," living in a place that is between being alive and dead. These individuals do not always attempt to commit suicide immediately due to many reasons, including but not limited to having anxiety about death, religious beliefs that those who commit suicide will end up in hell, the impact of ending one's life on family members or friends, and fear of being unsuccessful on the attempt (Church and Brooks, 2009, p. 31).

Like the "boiling frog" analogy, the subtle suicide process is often dormant for many years; in other words, it is usually subconscious and the victim is not always consciously aware of it until it is too late. Human being should not be driven to a boiling point like the frogs; instead, we should have relevant research-driven success strategies for everyone to become effective leaders in society by reducing and eliminating the need for suicides and violence (Mujtaba, Cavico and Senathip, 2020). The good news is that there are local and national resources for individuals who are struggling mentally, physically or psychologically with thoughts of suicides (*National Suicide Prevention Lifeline, 2020*). Furthermore, Church and Brooks (2009, p. 91) provides several factors that seem to protect people from subtle suicide tendencies, which include:

1. Having a positive and caring social support system on a regular basis.
2. Feelings of competency to meet one's personal and professional challenges.
3. Developing a sense of purpose and meaning for one's life.
4. Being able to have intimate connections with others at home, in the community and at work.
5. Feeling positive and hopeful about one's immediate life and for the future.
6. Having a positive self-concept.
7. Being relatively free from chronic or intense physical or psychological pain.

Mass shootings

Besides thousands of people committing suicide each year through blatant and subtle patterns, we are seeing more and more cases of mass shootings in the United States. Table 4 shows a sample of the mass shootings from the past few decades where most of the perpetrators acted in a suicidal manner knowing, that such a tragedy might immediately lead to ending their life. These examples also show that people of

all races, religions and backgrounds are likely to become perpetrators of mass shootings. Some of these individuals might have ideologically become extreme in their views over time, perhaps in subtle ways.

Table 4. Examples of Mass Shootings in the United States

| Date and City of Mass Shooting | # Killed | # Injured | Name, Ethnicity, Reasons and / or Rationale of perpetrator for the Atrocity |
|---|----------|-----------|---|
| June 18, 1990; Jacksonville, Florida | 10 | 4 | James Edward Pough; African American; his 1988 Pontiac was repossessed by GMC car loan office |
| October 16, 1991; Killeen, Texas | 24 | 20 | George Hennard; White; had shown hatred towards women |
| May 01, 1992; Olive Hurst, California | 4 | 10 | Eric Houston; White; fired from his long time job, failure to graduate high school, and failure to obtain GED |
| August 06, 1993; Fayetteville, Carolina | 4 | 8 | Kenneth Junior French; White; Clinton's plan to lift ban on being gay |
| June 20, 1994; Fairchild Air Force Base, Washington | 5 | 23 | Dean Allen Mellberg; White; Revenge for being recommended to be discharged |
| April 19, 1995; Oklahoma City | 168 | 680 | Timothy James McVeigh; White; Wanted revenge against the federal government for the Waco siege in 1993. |
| April 20, 1999; Littleton, Colorado | 13 | 24 | Eric Harris and Dylan Klebold; White; wanted to do better than those who killed before |
| April 16, 2007; Blacksburg, Virginia | 32 | 23 | Seung- Hui Cho; Asian; was bullied and hated "rich kids, Debaucher, Deceitful Charlton's" |
| November 05, 2009; Fort Hood, Texas | 13 | 30 | Nidal Malik Hasan; Arab; American Army officer who felt depressed for fighting his own people. |
| July 20, 2012; Aurora, Colorado | 12 | 70 | James Holmes; White; Ph.D. student with mental illness |
| December 14, 2012; Newton, Connecticut | 27 | 2 | Adam Lanza; White; Obsessed with school shootings |
| May 23, 2014; Santa Barbara, California | 6 | 13 | Elliot Rodger; European and Asian; revenge for being rejected socially and sexually |
| June 17, 2015; South Carolina | 9 | 1 | Dylann Storm Roof; White; wanted to start a war of race |
| December 02, 2015; San Bernardino, CA | 14 | 21 | Syed Rizwan Farook and Tashfeen Malik; Asian (Pakistan and Arab); Radicalized by foreign terrorist group |
| June 12, 2016; Orlando, Florida | 49 | 53 | Omar Mateen; White, born in NY to Afghan-American parents; Dislike for homosexuality and may have had self-radicalized terrorism ideologies |
| October 01, 2017; Las Vegas, Nevada | 58 | 546 | Stephen Craig Paddock; White; Unknown, but Paddock might have alexithymia |
| November 5, 2017; Sutherland Springs, TX | 26 | 20 | Devin Patrick Kelley; White; Motivated by argument with mother in law |
| February 14, 2018; Parkland, Florida | 17 | 17 | Nikolas J. Cruz; White, Hispanic ethnicity; Motive unknown, but Cruz has had disciplinary issues |

Source: our own table, developed by the authors.

Drivers of Mass Shootings Atrocities

As we know, guns are used more often in suicides than any other means of ending one's life since it is widely accessible in the United States. As such, it is generally agreed-upon that those who are mentally ill should not be able to buy and own a gun. However, the reality is that those who cause mass shootings do not necessarily have any known mental disabilities that could serve as gatekeeping means of keeping them away from weapons of mass causality. Jeffery Swanson, professor of psychiatry and behavioral sciences at Duke University, claims, "Mental health has become a 'scapegoat' that prevents a more 'comprehensive discussion about how to prevent gun violence'" (Vannette, 2018, para. 2). Emma McGinty, professor from Johns Hopkins University, conducted a study, which revealed that about 4% of those who have been involved in any sort of gun violence had a diagnosed mental issue (Vannette, 2018).

Emma McGinty argues that behaviors and actions like addiction and anger issues are different from those who are being diagnosed with a mental issue. Many of the mass shootings that have occurred in the United States seems to have had a White American behind them (Table 5). U.S. demographics have shown us that White men have low rates of mental illness and they tend to have more access to being treated for their issues; so mental health cannot and should not be the main reason why mass shootings happen. In addition, preventing those who are not of "sound mind" to buy a gun will not necessarily prevent gun violence, suicides and mass shootings. Perhaps ideology is the main reason why mass shootings occur. Mental illness has been taking the

blame for the occurrences of mass shootings when in reality, ideology is often behind it. The perpetrators of mass shootings seem to calculate their behavior and act on their feeling of not being accepted. Many experts discuss ideologies from the historically tragic events that have occurred in the past like the Holocaust when six million innocent men, women and children lost their lives simply due to their religious beliefs or those of their parents. The ideology behind the event was having a master race that was advanced by Adolf Hitler. Hitler helped justify and promote killing others in the minds of those who followed him. Our modern society needs mediators and change agents of inclusion to help transform negative biases toward a society where nobody is discriminated against due to their personal ideologies, religious views, sexual orientation, race, and/or ethnicity.

Preventing Mass Shootings

As demonstrated by data in this study, most people commit suicide using guns; and almost all mass shootings cases referenced in this research were committed by various forms of military-grade artillery; as such, we can see that there is a direct and strong relationship between suicides, guns and mass-shootings. The more guns and access to guns, the higher the rate of suicides and mass shootings. If we want no suicides and no mass shootings, then the first action taken should be to eliminate the availability of guns for ordinary citizens. At the minimum, policymakers should reduce the access of ordinary citizens to weapons that were built for mass casualties in the battlefield by trained military personnel, as there is no need for private citizens to own them.

Consequently, many policies and actions should be implemented concurrently to prevent suicides and mass shootings; and removing access of the ordinary citizen to military-style weapons should be one of them. In the 2018 Parkland shooting about 17 students and staff members were killed, about 17 were injured, and many more were traumatized. The younger generation feels that the words used after the shooting made by victims or relatives of the victims should be ongoing and continuous, rather than just after each tragic shooting. The funding for programs related to mental issues should not just be related to the care, but also to prevent mental issues. “Millions of adults have behavioral conditions, including at least three million with serious mental health conditions that are not receiving treatment” (Leiner, Vega, & Johansson, 2018, p. 1). Most of these individuals do not have many options to receive proactive treatments for their psychological health issues, so they go to “emergency services” which can be more problematic and costly.

Many times acts of violence are claimed to be caused by mental health issues but about 5% of these acts are committed by people with diagnosed mental ailments. It has been observed that those who suffer from mental issues are more likely to be the victims than be the perpetrator. Today, prisons are known to be the facility for mental health treatment because many people with mental health issues have been arrested.

Children who are showing aggressive behavior has become a concern as such behaviors have been seen in kids from ages 12-16 almost 75% of the time. If such behaviors become normal then there are more hazards and risks that may occur in the future since “school failure, drug addiction, and early pregnancies in adolescence, is three times higher than for individuals who possess better coping strategies” (Leiner, Vega, & Johansson, 2018, p. 2). The risks are far greater for children living in poverty or with teenage and single parents. Remaining in poverty, despite one’s persistent hard work and efforts, can cause depression, which might lead to mental illness. It is also a reality that persistent mental issues can keep a person in poverty due to the high cost of treatments, and the inability of getting and retaining a good-paying job. Stopping, managing and treating aggressive behaviors in adolescence is way easier than doing so during adulthood. It is recommended that policymakers and professionals work to stop unmanageable and aggressive behaviors at an earlier stage of a person’s life because it helps prevent problems in the future. If not taken care of, this could lead to problems on the job, suicides, mass shootings, and/or other crimes in general.

Today, young students are being prepared with drills and lessons in case an active shooter enters their school. Most of the school shooting cases have been done by teenagers who were either angry, disappointed, bullied, and/or mentally ill. Looking at statistics from (1840-2015) it has been revealed that the biggest contributor (61%) to shootings is rage, arguments, and altercations. The second most contributor (14%) to shootings have to do with “discipline.” The problem is not with the right to bear arms, but the problem is with the rules and regulations that come with it. Common sense regulations do aid in preventing suicides, gun violence, and mass shootings.

Of course, fear has no place in schools or society. We need to promote the idea of “More kids, less guns in school” and the general society. Some people honestly believe that “Guns don’t kill people; people kill people”; while this is a valid point, we need to remember that our research shows that people use guns to commit suicides, thereby killing themselves and other people around them. Some individuals say that “The only thing that stops a bad guy with a gun is a good guy with a gun”; perhaps a better mindset, view and statement might be that “The only thing that stops a bad guy with a gun is to proactively eliminate the availability of guns to ordinary citizens and bad guys.”

As mentioned by the 2016 Presidential nominee, Hillary Clinton, “We cannot let a minority of people — and that’s what it is, it is a minority of people — hold a viewpoint that terrorizes the majority of people” through their access to and use of guns and other available weapons of mass destruction. As questioned by author Stephen King, “How many have to die before we will give up these dangerous toys?” Of course, we can see more evidence in the 2020 protests in the United States where millions of diverse people groups are speaking against the gun violence, racial discrimination, and inequities that have been committed in the hands of police officers or self-appointed vigilantes who wrongly used their gun, authority and/or power with such victims as Tamir Rice, Breayana Taylor, Michael Brown, Eric Garner, Philando Castile, Breonna Taylor, George Floyd, Trayvon Martin, Atatiana Jefferson, Jordan Edwards, Botham Jean, and others killed, many of them by formal police officers who actually took an oath to protect the lives of citizens in each community.

As eloquently emphasized by Emma Gonzalez, a teenager who survived the mass shooting of the Marjory Stoneman Douglas High School at Parkland, Florida, “So we are speaking up for those who don’t have anyone listening to them, for those who can’t talk about it just yet, and for those who will never speak again. We are grieving, we are furious, and we are using our words fiercely and desperately because that’s the only thing standing between us and this happening again.” Policymakers and individual citizens need to speak up and recommend solutions for a better society for all as “Thoughts and prayers are not enough” for the reduction of suicides and mass shootings.

Conclusion

Our data from South Florida suicides showed that Whites account for a majority of the total suicides in Broward County; so more focus should be on White Americans to figure out how to reduce this high number of suicides. This can involve the reallocation of county resources (financial, human, and technological) to target this racial group. Gunshot is the main method of suicide for all racial groups and most municipalities in the county. Hence, more resources should be allocated throughout the county and nation to reduce suicides from gunshot.

In terms of gender, men have a 3 to 1 ratio for suicides compared to females. Since gunshot is the number one method of suicides for men, focus should be on how to prevent men from committing suicides with guns. For women, focus should also be on reducing suicide by guns and by all toxicity related methods. As Tuesday and Wednesday seem to be the most common days for suicide, the county must step up its prevention programs before and during those two days.

Policy makers can focus on the main reasons and methods for suicides in order to reduce it. In addition, with the high rates of suicides in some locations, policy makers can target the top methods to reduce suicides in their communities. Considering that gunshot is much higher than the other top four methods in nearly all the municipalities, more focus should be put on prevention of suicides and mass shootings by eliminating access to guns and artillery rifles that are designed for the battle fields.

Limitation and future direction

A limitation of this paper is the limited number of variables that are available in our data. Other demographic variables like education, income, marital status, size of family, drug use, body weight, and health issues could have provided a wider array of results. This would likely provide more alternatives to policy makers.

Furthermore, scientific analysis is required to see if there is a link between suicide and mass shootings. Further research can be done to determine if there are time-of-day effects, holiday effects, and economic effects based on the business cycle in Broward County. While the theories of reasoned action and ethical emotism may not fully explain suicidal tendencies and behaviors, they can be used for training purposes as well as for future research in explaining why a person chooses to end his or her life.

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