

# A Comparison of 2017 YRBS Data Regarding Weapon-Related Violence in Duval County, Florida and Nationwide

Briana Lopez, Madisen Reasonover, Camryn Bergeron, Makinlea Dozier, Judith Rodriguez, PhD, RDN

Lopez B, Reasonover M, Bergeron C, Dozier M, Rodriguez J. A comparison of 2017 Youth Risk Behavior Survey (YRBS) data regarding weapon-related violence in Duval County, Florida and nationwide. *Harvard Public Health Review*. 2019;24

## Abstract

The purpose of this study was to compare data from the National 2017 Youth Risk Behavior Survey (YRBS) and the Duval County, FL 2017 YRBS regarding the prevalence of weapon-related violence among high school students. Alongside the collection of national data, the CDC funds particular large urban school districts to collect data on their specific populations. Among those is Duval County, FL, one of the largest school districts in the state of Florida that is home to over 129,000 students and 206 schools (National Center for Education Statistics, 2018). In examining the results, we used an analysis of secondary data for four questions which address how often an individual carries a weapon on and off school property, feelings of safety on campus, and threats to safety on campus. Results indicated that high school students in Duval County, FL, did not go to school because they felt unsafe at school or on their way from school more often than high school students at the national level. Furthermore, compared to students nationally, more high school students in Duval County, FL were threatened or injured with a weapon on school campus. There were no significant findings regarding the prevalence of weapon-carrying behaviors among Duval County, FL high school students and high school students nationwide. Potential contributors to the higher prevalence of weapon-related violence behaviors may reflect elements of the Social Determinants of Health including, socioeconomic, cultural and environmental conditions, all of which are associated with the diverse population in Duval County, FL.

Youth involvement in violence is among one of the largest threats to their health and social wellbeing. Weapon-related violence poses even more critical risks due to the often-fatal outcomes. Weapon related violence can be defined as, “Interpersonal behavior that is intended to coerce or to cause harm, injury, or death...[such as] carrying a knife or gun, using a weapon to force someone to do something...and hurting someone badly enough to need medical attention” (Zimmerman, M. A., Steinman, K. J., & Rowe, K. J., 1998). This kind of violence is influenced by various factors including those outlined by the Social Determinants of Health (SDH) framework. The Centers for Disease Control and Prevention’s (CDC) National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention (NCHHSTP) defines the Social Determinants of Health as, “Complex, integrated, and overlapping social structures and economic systems that are responsible for most health inequities” (CDC, 2017). These structures and systems include “The social environment, physical environment, health services...structural and societal factors... [and]...are shaped by the distribution of money, power, and resources throughout local communities, nations, and the world” (CDC, 2017). It is important to consider which of these factors impact rates of weapon-related violence because of the effects this violence can have on youth and their development.

Existing research posits many reasons for the increased prevalence of weapon-related violence and the risks associated with this kind of violence. The CDC explains that youth involvement in weapon-related violence in their schools and community is related to poor health outcomes and poor academic performance (2017). Any disruption to the expected school setting, including being threatened by a weapon or feeling generally unsafe, impacts feelings of school

connectedness (CDC, 2017). This is problematic because school connectedness is a known protective factor against many maladaptive behaviors including substance abuse and mental health issues which also inhibit academic success (CDC, 2017).

Because rates of weapon-related violence vary among states and districts, it is important to consider how the social and economic structures in Duval County, FL differ to those nationally and how they may contribute to weapon-related violence. With a population of 926,255 people, Duval County, FL has a uniquely diverse makeup that could lend itself to the causes or contributions of the critical issue of weapon-related violence. In Duval County, FL 52.3% identify as White, 30.3% identify as Black, 9.4% identify as Hispanic and 4.37% identify as Asian (Jacksonville, FL, 2017). However, nationally 76.6% of people identify themselves as White, 13.4% identify as Black, 18.1% identify as Hispanic and 5.8% identify as Asian (U.S. Census Bureau). The 2012 Duval County Community Health Improvement Plan (CHIP) was created to improve the health of Duval County, FL residents and assesses which areas of Jacksonville, FL are most risk (Floridahealth.gov, 2012). The implementation of health zones allowed for a better evaluation of these differences. In Duval County, FL there are six health zones (Urban Core (HZ1), Greater Arlington (HZ2), Southeast (HZ3), Southwest (HZ4), Outer Rim (HZ5), and Beaches (HZ6) (Floridahealth.gov, 2012). HZ1 has the largest minority population, the highest poverty rate, and the lowest percentage of residents with more than a high school education. (Floridahealth.gov, 2012). In HZ1 over 1 in 10 students were threatened or injured with a weapon at school and 10.9% of students did not go to school because they felt unsafe at school or on the way to or from school compared to 7.1% of students nationally (YRBS, 2015). Furthermore, 10.3% of high school students in HZ1 were threatened or injured with a weapon on school property compared to 6.9% nationally (YRBS, 2015). HZ4 had highest prevalence of students that felt unsafe at school (16.5%), were in a physical fight at school (16.6%), carried a weapon at school (9.6%), were threatened or injured with a weapon at school (15.8%), and threatened or injured someone with a weapon at school (14.3%) (YRBS, 2015). CHIP also administered a survey to local residents and 38.9% reported violence as being the health issue they are most concerned with (Floridahealth.gov, 2012). These statistics clearly illustrate the health disparities across Duval County, FL and how these differ from high school students nationwide. Moreover, when considering the SDH framework, various social and economic factors contribute to these disparities specifically in the economically, racially and ethnically diverse community of Duval County, FL.

To further evaluate these disparities, we developed various objectives for our research. Our first objective was aimed at determining how often students carried a weapon, such as a gun, knife or club, onto school property as well as in general (YRBS questions 13 and 14) in the past 30 days. We then sought to determine the rate that students did not attend school because they were fearful for their safety either at school, or on their way to or from school (YRBS question 15). Finally, we intended to determine the frequency of weapon-related threats or injuries on school property (YRBS question 16). We expect that high school students have been threatened or injured with weapons on school property more often in Duval County, FL, than students nationwide and that they will report not attending school because they felt they would be unsafe more often than students nationwide.

## **Method**

### **Participants**

The YRBS is administered every odd year on a national and local scale. For national data, the YRBS employs a three-stage cluster sample design to produce a representative sample of students. Conversely, to examine local data from Duval County, FL, the YRBS uses a two-stage cluster sample design and one of two sampling techniques; either multiple-class sampling or multiple-school sampling. When multiple-class sampling is used, surveys are conducted simultaneously in separate classes. When multiple-school sampling is used, the number of classes needed for one survey is multiplied by the number of surveys and the classes are then randomly assigned to complete them.

The 2017 Duval County, FL YRBS is made up of high school students in grades 9-12 (n = 3,494) from various public and private schools including charter, special, vocational, or religious schools across Jacksonville, FL. The participants are categorized by gender, race, sexuality, and other identifying factors. Furthermore, a weight based on sex, race/ethnicity, and grade is placed on the results in order to account for school and student nonresponse and the oversampling of minority students.

## Materials

The YRBS is a self-administered, anonymous questionnaire that focuses on monitoring six health-risk behaviors. These include sexual behaviors, alcohol use, drug use, tobacco use, violence, and diet and exercise. Students record responses to the questionnaire on a computer-scannable questionnaire booklet or answer sheet and are monitored by school staff including teachers and administrators. To assess for reliability, the CDC conducted two test-retest reliability studies in which all questions with significantly different estimates for the prevalence of particular behaviors during the first and second time the questionnaire was administered, were revised or removed from subsequent editions of the questionnaire. The CDC also conducted a study to assess the validity of questions pertaining to height and weight and found that the results were reliable but not substantially valid. They note that various cognitive or situational factors may influence self-reported answers and that policymakers can use this understanding to inform their interpretation of the data and researchers should aim to design studies that are more statistically valid.

## Procedure

To compare the prevalence of weapon-related violence, we performed a secondary analysis of questions 13, 14, 15, and 16 which address how often an individual carries a weapon on and off school property, feelings of safety on campus, or threats to safety on campus, respectively. (The responses to questions 13, 14, 15, and 16 were obtained from the 2017 YRBS Results).

## Results

Results from this study support the hypotheses that high school students in Duval County, FL, have been threatened or injured with weapons on school property and have been absent from school because they felt unsafe, more often than high school students nationally. There was a significant difference ( $p < 0.01$ ), in weapon-related threats and feeling unsafe on school property in Florida data compared to national data (see table 1). In contrast, there was no significant difference between national data and Florida data with regards to carrying a weapon on school property ( $p < 0.74$ ) and carrying a weapon in general ( $p < 0.73$ ) (see table 1). The 2017 YRBS Duval County, FL data reports that 9.9% of students had been faced with safety or weapon-related issues on school property. Furthermore, 12.7% of students admitted to staying home from school because they felt unsafe or said they had been threatened with a weapon while at school as compared to the 6.7% of students nationally. Though these were not significant findings, the data also shows that 4% of Duval County, FL students admitted carrying a weapon on school property while 3.8% of the surveyed national students also carried a weapon on campus.

## Discussion

Using data from the Youth Risk Behavior Surveillance System (YRBSS) 2017 YRBS, we conducted a secondary analysis of questions related to weapon-related violence and threats to safety. By reviewing both national and Duval County, FL data, we noted areas where the data illustrated that Duval County, FL high school students were more at risk. While some youth weapon-related violence data indicates that Duval County, FL may not be higher than the national average, further research regarding weapon-related violence rates and trends should be done to decrease the occurrence of weapon related violence and promote an overall safe and healthy environment for students. Nationally, trends in results indicating whether students were threatened or injured with a weapon at school are heading in a more positive direction. With regards to Duval County, FL, there is a slight decrease in the trend of students who carried a weapon onto school property. By comparing such data trends, we can develop effective plans and interventions to decrease weapon-related violence locally and nationally. One such intervention that was created to target Duval County, FL violent crime specifically, was the Jax Journey project. This initiative had many aims, one of which specifically targeted at-risk youth by implementing programs to promote higher academic performance, lower dropout rates, and lower future suspension rates which are all associated with reduced involvement in crime (City of Jacksonville, 2016). Outcome data from the Jax Journey initiative indicated that students with one offense who took part in the Alternative to Out of School Suspension (ATOSS) program dropped out of school 6% less than those who never took part in the program (City of Jacksonville, 2016). These findings

were consistent with the goal of the ATOSS program which was to reduce the number of students who drop out of school. Follow up research on this program is necessary in order to determine if continued funding for these programs is essential or if other interventions would be more efficacious.

Further research and application to various theoretical frameworks like the SDH framework help to better identify the factors that contribute to the increased prevalence of weapon-related violence and thus, allow researchers to create more constructive intervention strategies and effective policy decisions. The SDH framework suggests that social, educational and economic factors are important elements related to weapons-related violence. HZ1 and HZ4 are at increased risk in the area of weapon-related violence when compared to national figures. Compared to other zones, these areas are largely comprised of underserved, low-income minorities with health disparities. This is particularly important because, according to YRBS data, individuals who identify as Black or Hispanic experience weapon-related violence and threats to safety more often than other ethnicities (YRBS, 2017). Other environmental and social factors associated with these communities may also play a role. Kondo and her colleagues evaluated the effects that various neighborhood factors had on the rate of violence in communities and found that demolishing high-rise public housing, increasing subsidized affordable housing and cleaning and greening vacant lots was associated with a decrease in gun violence and other violent crimes (Kondo, Andreyeva, South, MacDonald, and Branas, 2018). Other social factors including reducing alcohol availability and opening schools can reduce violent crime and overall crime respectively (Kondo, 2018). It is necessary to assess the areas in Duval County, FL that are most at risk (HZ1, for example) for these neighborhood and social factors in order to determine if these factors may be contributing to the increased rates of violence and targeted interventions should follow these assessments.

It is critical that interventions be targeted to specific at-risk populations in order to ensure positive health outcomes for those most in need. In high school, adolescents are in a critical period of development and threats to this development can have a lasting impact. Keeping teenagers in schools, and ensuring those schools and communities are safe and free of violence can help to preserve the health and wellbeing of adolescents. It is the collaborative responsibility of public health researchers, policymakers, and stakeholders to determine what factors have the greatest impact (whether it be social or environmental effects), what interventions are efficacious, and to fund the programs (like the Jax Journey initiative) known to successfully reduce weapon-related violence in youth and their communities. With these effective policy decisions and interventions, Duval County, FL can become an overall safer, and healthier place for all to learn, work, and live comfortably.

## References

Centers for Disease Control and Prevention. (2017). *NCHHSTP Social Determinants of Health*. Retrieved from <https://www.cdc.gov/nchhstp/socialdeterminants/definitions.html>  
(<https://www.cdc.gov/nchhstp/socialdeterminants/definitions.html>)

Centers for Disease Control and Prevention. (2017). *Youth Risk Behavior Survey Data Summary & Trends Report 2007-2017*. Retrieved from <https://www.cdc.gov/healthyyouth/data/yrbs/pdf/trendsreport.pdf>  
(<https://www.cdc.gov/healthyyouth/data/yrbs/pdf/trendsreport.pdf>)

City of Jacksonville (2016). *Jacksonville Journey Efficacy Study [PDF File]*. Retrieved from <http://www.coj.net/getattachment/Departments/Jax-Journey/Jax-Journey-Efficacy-Study.pdf.aspx>  
(<http://www.coj.net/getattachment/Departments/Jax-Journey/Jax-Journey-Efficacy-Study.pdf.aspx>)

Floridahealth.gov. (2012). *Community Health Assessment and Community Health Improvement Plan*. Retrieved from [http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/\\_documents/chip.pdf](http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/_documents/chip.pdf)  
([http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/\\_documents/chip.pdf](http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/_documents/chip.pdf))

Florida Department of Education. (2009). *2008-09 FSIR Indicators*. Retrieved from <http://www.fldoe.org/accountability/data-sys/edu-info-accountability-services/archive/2008-09-fsir-indicators.stml>  
(<http://www.fldoe.org/accountability/data-sys/edu-info-accountability-services/archive/2008-09-fsir-indicators.stml>)

Hemenway, D., Barber, C., & Miller, M. (2010). Unintentional firearm deaths: A comparison of other-inflicted and self-inflicted shootings. *Accident Analysis & Prevention*, 42(4), 1184-1188. doi:10.1016/j.aap.2010.01.008

Jacksonville, FL. (2017). Retrieved from <https://datausa.io/profile/geo/jacksonville-fl/>  
(<https://datausa.io/profile/geo/jacksonville-fl/>)

Kondo, M. C., Andreyeva, E., South, E. C., MacDonald, J. M., & Branas, C. C. (2018). Neighborhood interventions to reduce violence. *Annual Review of Public Health*, 39(1), 253-271. doi:10.1146/annurev-publhealth-040617-014600

Leary, Mark. Kowalski, Robin. Smith, Laura. Phillips, Stephen. Teasing, Rejection, and

Violence: Case Studies of the School Shootings. (29). 202-214. *Aggressive Behavior*. (2003).

Madfis, E. (2016). In Search of Meaning: Are School Rampage Shootings Random and Senseless Violence? *The Journal of Psychology*, 151(1), 21-35. doi:10.1080/00223980.2016.1196161

National Center for Education Statistics, U.S. Department of Education. (2018). *Common Core of Data (CCD) public school district data for the 2016-2017, 2017-2018 school years*. Retrieved from the National Center for Education Statistics Web site: [https://nces.ed.gov/ccd/districtsearch/district\\_detail.asp?start=0&ID2=1200480](https://nces.ed.gov/ccd/districtsearch/district_detail.asp?start=0&ID2=1200480)  
([https://nces.ed.gov/ccd/districtsearch/district\\_detail.asp?start=0&ID2=1200480](https://nces.ed.gov/ccd/districtsearch/district_detail.asp?start=0&ID2=1200480))

U.S. Census Bureau QuickFacts: UNITED STATES. (n.d.). Retrieved from <https://www.census.gov/quickfacts/fact/table/US/PST045217>  
(<https://www.census.gov/quickfacts/fact/table/US/PST045217>)

Youth Risk Behavior Survey. (2015) *Duval County High School Students 2015 Violence, Suicide, and Safety Behaviors*. Retrieved from [http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/\\_documents/violence-suicide-safety-behaviors-hs-2015.pdf](http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/_documents/violence-suicide-safety-behaviors-hs-2015.pdf) ([http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/\\_documents/violence-suicide-safety-behaviors-hs-2015.pdf](http://duval.floridahealth.gov/programs-and-services/community-health-planning-and-statistics/_documents/violence-suicide-safety-behaviors-hs-2015.pdf))