Suicide Hotline Report on Youth Suicide in Anne Arundel County

Prepared by
Amy Cheng, Marissa George, Shir Kaplan, Owen O'Keefe, and Brittany Shapiro

Under the supervision of
Dr. Sharon Desmond

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Gerrit Knaap, NCSG Executive Director
Uri Avin, PALS Director

Executive Summary

In Anne Arundel, the Mental Health Agency created a suicidal warmline, similar to a hotline, which follows up on suicidal youths who call in for help. Data is collected regarding demographics, mental health history, as well as dispositions of those who call in. Using data collected by the Crisis Response System personnel from their warmline and the local police department, we were able to analyze demographic data for youths aged 8-25 who had suicidal ideation or attempted suicide.

Analyzing the data, we found a number of significant trends and patterns. The majority of calls were from two main areas, Pasadena and Glen Burnie, which are relatively different areas in terms of racial demographics and income levels. A pervasive trend throughout the data was that blacks were disproportionately represented within suicidal youths, both in regards to the general demographics of Anne Arundel as well as within cities. The data also showed trends towards suicidal ideation with a plan, in comparison to without a plan, as well as suicide attempt with a plan and means, rather than without means. This can have significant implications on outcomes for the suicidal youth. There was a low prevalence of mental disorder history amongst the respondents, suggesting a possibility of low diagnosis and also a potential area of improvement.

Upon analyzing the data and writing up our findings, we have made the following recommendations:

1) Further research needs to be done to understand why black youth are disproportionately suicidal in Anne Arundel County. A survey investigating the lifestyle and health of black youth should be made and distributed to better understand what factors are at play causing this disparity.

2) Increased financing and resource allocation should go to the cities of Glen Burnie and Pasadena to address the large population of suicidal youth in those cities. The Anne Arundel County Mental Health Agency should work with community partners in those respective areas to implement interventions to reduce the prevalence of suicidal youth.

3) The Crisis Response System data collection sheet should be altered to improve its ability to document the factors involved with youth suicide so that they can be better studied.

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Introduction

The Anne Arundel County Mental Health Agency has created a number of programs and interventions to address the issue of youth suicide in the community, including the creation and monitoring of a suicidal "warmline." It provides youth with resources and support, and is a good way for the health department and crisis centers to collect data about suicidal youth in the county. By analyzing this data, we plan to identify any trends or patterns in suicidal youth, looking at categories including demographics, disposition, or mental health history. Recognizing a framework or specific structure within the problem of youth suicide is useful for informing prevention actions or resource allocation. Doing so, we will also be able to provide recommendations to the Anne Arundel County Mental Health Agency and other stakeholders in the community. The analysis we run can also inform program planning or interventions and help set precise objectives for the community. The data analysis we use will help the county assess areas and people of need, and create support and backing for evidence-based initiatives as well as evaluate current prevention programs.

Jennifer Corbin, the director of the warmline, was especially interested in evaluating patterns in the zip codes, to see if there were any areas of higher calls. She also wanted to know if we found anything statistically significant in the data regarding race, gender, or age. Another issue of particular interest was suicidal ideation versus attempt, and if any information could be gleaned from the data regarding how many youth actually have a plan and follow through with it. The information in the data collection sheets is all done through police follow-up after calls to the warmline are placed.

Literature Review

Suicidality poses a relevant threat to the wellness and longevity of youth, which is evident from the high rates of suicide. The Centers for Disease Control and Prevention (CDC) has reported that approximately 157,000 youth aged 10 to 24 receive emergency medical care for self-inflicted injuries annually (2016). Intentional self-harm that results in death, otherwise defined as suicide, constitutes the third leading cause of death amongst youth aged 15 to 24 years in the state of Maryland (Hogan, Rutherford, & Mitchell, 2014). Specifically within Anne Arundel County, suicide is the primary cause of death amongst youth aged 10 to 17 years (Chan, 2014). Although Anne Arundel's average suicide rate is lower than the national average, the county has a higher average than the rest of the state. The mental health concern of suicidality is magnified by the large number of youth who have reported serious consideration of suicide. According to the Anne Arundel Youth Suicide Assessment, 16.9% of youth in grades 9 through 12 have seriously considered suicide (Chan, 2014).

When striving to understand the implications of these statistics, it is important to make a distinction between suicidal ideation and attempted suicide. Suicidal ideation has been defined by the CDC as "thinking about, considering, or planning suicide" (CDC, 2015) but does not suggest an attempt. Conversely, a suicide attempt is defined as an intentional act of a potentially injurious behavior with the intent of death (CDC, 2015). Although suicidal ideation is more challenging to identify, early

identification may allow for implementation of programs that focus on limiting the progression to more serious outcomes and reduce possible negative consequences.

Even if a suicide attempt is unsuccessful, suicidality and suicidal ideation can have numerous negative implications on the wellness of an affected individual as well as their community. Not only does the individual lose their life or suffer the psychological damage of a suicide attempt, but their families and communities suffer as well. In addition, the stigma surrounding suicide and suicide attempts affects individuals and their families. Studies have reported that after a suicide, family members and close friends of the deceased exhibit increased feelings of rejection, anger, and guilt as compared to those grieving a loss due to natural death (Wojtkowiak, Wild, & Egger, 2012). It can take many years for the impact of a suicide to subside, as many survivors report that their feelings of sadness, depressed mood, sorrow, and abandonment negatively affect their everyday lives (Schneider, Grebner, Schnabel, & Georgi, 2011).

Identifying potential risk factors can help address these negative consequences through the creation of targeted preventive efforts that are specifically relevant to the Anne Arundel community. Potential risk factors involve ethnic identity as well as the stress of acculturation. Acculturative stress refers to the emotional strain faced by members of a minority culture as they interact with a dominant culture. This can result in a shift in identity, as well as a change in an individual's values, beliefs, or attitudes. In one study, at least some level of acculturative stress was found in 50% of suicidal youths, with both racial and ethnic identity providing a basis for this stress (Haboush-Deloye, Oliver, Parker, & Billings, 2015). A strong correlation was demonstrated between acculturative stress and suicidal ideation in Hispanics, as well as Caucasian students with high levels of identity tied to their ethnic background. This is particularly relevant to Anne Arundel County because the county has a large Caucasian population comprising approximately 75% of the total population as well as a growing population of Hispanics that now represent 7% of the total population (U.S. Department of Commerce, 2015).

In addition to ethnic identity, early onset of depression puts youth at risk for suicidal ideations and attempts at self-harm. Having a major depressive episode at an early age makes youth more likely to attempt suicide, with continued exhibits of suicidal behavior throughout their adult lives (Johnstone et al., 2015). A review of prevention efforts and interventions indicate the fact that early age of onset is correlated to poorer outcomes in individuals, and a lower level of functionality as an adult. Importantly, intervention that occurred at the onset of a disorder was noted to reduce severity and persistence of a disorder, meaning that interventions aimed at youth and adolescents are crucial (De Girolamo, Dagani, Purcell, Cocchi, & McGorry, 2012). Specifically, studies have found that adolescent depression functions as a major predictor of continued mental health problems in adulthood. Therefore, early interventions that help identify and address adolescent depression can have long-ranging effects (Uher, 2011).

Suicide is understood to be fully preventable. Therefore, understanding the implications and risks for this psychiatric phenomenon, in the context of the Anne Arundel community, is vital to developing successful preventative programs. The Anne Arundel County Mental Health Agency works with the Anne Arundel County's Crisis Response System to bring together key community stakeholders to address the issue of youth suicide in the community. The vision of Anne Arundel County's Youth Suicide Awareness

Action Team includes educating and empowering the community to prevent youth suicide and eliminate its stigma by providing support, services, and resources that promote optimal mental health and resiliency in children and families (YSA, 2015). The action team, founded in 2008, had initiated a number of various interventions, including the development of a "warmline" that provides youth with an anonymous resource during crisis. The team meets monthly, with over 100 individuals who all represent the collaboration of different community institutions, agencies, and organizations to focus on early intervention and prevention. Partners include the public school system, mental health facilities, medical centers, police departments, and religious institutions. The team has received grants and certificates of recognition for the diverse initiatives and immense amount of work they have done in Anne Arundel County (YSA, 2015).

Youth suicide is not caused by one specific issue but the culmination of individual, social, and environmental factors. Unlike other mental health issues that can be effectively treated from an individual and clinical perspective, youth suicide requires a community-based preventative approach. Strength-based models of intervention are used by communities to enhance youth development at the primary level (Chung-Do et al., 2014). These types of interventions target individual skills, while policy changes such as stricter laws regarding firearm availability and child access prevention aim to protect youth from suicide at a societal level (Gius, 2015). Hotlines like Anne Arundel County's Crisis Response System's warmline are considered indicated interventions on the mental health spectrum, meaning they are designed for people who already show symptoms, such as an adolescent calling about suicidal ideation (Burns, Patton, & Burns, 2000). This type of secondary prevention at the organizational level is helpful but comes with its own difficulties. One paper notes that there are inconsistencies amongst the procedures and protocols currently put in place to help identify youth at risk and address their needs (Heilbron et al., 2013). While collaboration is a necessary function of prevention, sometimes the connections between organizations are not successful. For example, hotlines and warmlines often have connections with mental health facilities or psychiatrists but have vague or unclear guidelines and expectations about follow-up with hotline and warmline users. Hotlines and warmlines must partner with schools, religious institutions, and other community programs to provide direct linkages to prevention programs and implement stricter rules so that the best care can be provided for at risk youth.

Methods

The Anne Arundel Crisis Response System personnel developed a data collection sheet to record information from calls for service and the daily brief they receive from the county police department which includes all emergency petition cases. The Crisis Response System team completes data collection sheets for all emergency petition patients under 24 years of age. These sheets include demographic information, suicidal ideation and suicide attempts, mental health diagnoses, as well as insurance information. They provided us with 176 data collection sheets that we coded and entered into SPSS and conducted frequency analysis on demographic information including month, district, city, zipcode, age, race, and gender. In addition to frequency data we looked for relationships between certain

demographic variables like age, gender, zip code and suicide specific data such as attempts, ideation, and completion of acts.

Findings

The total sample size was N=176. The month of July had the highest percentage of warmline calls with 44.3% of the calls occurring during this month (n=78) while 31.3% of calls occurred during August (n=55), and 24.4% in September (n=43). The western district of the county had the highest number of calls with 33.1% (n=56) of the total calls originating from residents in this district, followed by the eastern section of the county with 32% of the calls (n=54), the northern section with 21.3% (n=36), and the southern section of the county with 13.6% (n=23) of the total calls. The largest portion of calls originated from Glen Burnie at 18.8% (n=33) followed by Pasadena at 17.6% (n=31). Consistent with the sample distribution of city residence, 18.3% of the sample originated from the 21122 zip code (n=31), 14.8% from the 21061 zip code (n=25), and 10.1% from the 21144 zip code (n=17).

Demographics of the sample consisted of a gender distribution of 46.3% male (n=81) and 53.7% female (n=94). The average age of the sample was 18 (SD± 3.69) with 0.6% of the sample being 8 years old (n=1), 0.6% of the sample 9 years old (n=1), 2.8% of the sample 10 years old (n=5), 2.3% of the sample 11 years old (n=4), 1.7% of the sample 12 years old (n=3), 1.7% of the sample 13 years old (n=3), 4.5% of the sample 14 years old (n=8), 8.5% of the sample 15 years old (n=15), 8.5% of the sample 16 years old (n=15), 14.2% of the sample 17 years old (n=25), 8.0% of the sample 18 years old (n=14), 8.0% of the sample 19 years old (n=14), 8.0% of the sample 20 years old (n=14), 10.2% of the sample 21 years old (n=18), 7.4% of the sample 22 years old (n=13), 7.4% of the sample 23 years old (n=13), 4.5% of the sample 24 years old (n=8), and 1.1% of the sample 25 years old (n=2). The racial distribution included a high percentage of white individuals at 70.4% (n=119), followed by 23.1% individuals identifying as black (n=39), 2.4% as Hispanic (n=4), 1.8% as Asian (n=3), and 2.4% as other (n=4).

Month

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	July	78	44.3	44.3	44.3
	August	55	31.3	31.3	75.6
	September	43	24.4	24.4	100.0
	Total	176	100.0	100.0	

County District

	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Northern	36	20.5	21.3	21.3
	Eastern	54	30.7	32.0	53.3
	Southern	23	13.1	13.6	66.9
	Western	56	31.8	33.1	100.0
	Total	169	96.0	100.0	
Missing	99	7	4.0		
Total		176	100.0		

City

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Annapolis	9	5.1	5.1	5.1
	Friendship	1	.6	.6	5.7
	Pasadena	31	17.6	17.6	23.3
	Deale	1	.6	.6	23.9
	Linthicum	5	2.8	2.8	26.7
	Davidsonville	2	1.1	1.1	27.8
	Glen Burnie	33	18.8	18.8	46.6
	Gambrills	3	1.7	1.7	48.3
	Hanover	4	2.3	2.3	50.6
	Riva	1	.6	.6	51.1
	Severn	17	9.7	9.7	60.8
	Odenton	8	4.5	4.5	65.3
	Severna Park	6	3.4	3.4	68.8
	Laurel	6	3.4	3.4	72.2
	Millersville	3	1.7	1.7	73.9
	Crofton	11	6.3	6.3	80.1

	Edgewater	6	3.4	3.4	83.5
	Crownsville	4	2.3	2.3	85.8
	Arnold	6	3.4	3.4	89.2
	Other	17	9.7	9.7	98.9
	Homeless	2	1.1	1.1	100.0
	Total	176	100.0	100.0	

Zipcode

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20711	1	.6	.6	.6
	20724	6	3.4	3.6	4.1
	20751	2	1.1	1.2	5.3
	20758	1	.6	.6	5.9
	20764	3	1.7	1.8	7.7
	20776	1	.6	.6	8.3
	20778	1	.6	.6	8.9
	20779	1	.6	.6	9.5
	21012	6	3.4	3.6	13.0
	21032	4	2.3	2.4	15.4
	21035	1	.6	.6	16.0
	21037	6	3.4	3.6	19.5
	21054	3	1.7	1.8	21.3
	21060	8	4.5	4.7	26.0
	21061	25	14.2	14.8	40.8
	21076	4	2.3	2.4	43.2
	21090	5	2.8	3.0	46.2

	21108	3	1.7	1.8	47.9
	21113	8	4.5	4.7	52.7
	21114	11	6.3	6.5	59.2
	21122	31	17.6	18.3	77.5
	21140	1	.6	.6	78.1
	21144	17	9.7	10.1	88.2
	21146	6	3.4	3.6	91.7
	21225	3	1.7	1.8	93.5
	21226	3	1.7	1.8	95.3
	21401	2	1.1	1.2	96.4
	21402	1	.6	.6	97.0
	21403	4	2.3	2.4	99.4
	21409	1	.6	.6	100.0
	Total	169	96.0	100.0	
Missing	99	6	3.4		
	System	1	.6		
	Total	7	4.0		
Total		176	100.0		

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	08	1	.6	.6	.6
	09	1	.6	.6	1.1
	10	5	2.8	2.8	4.0
	11	4	2.3	2.3	6.3
	12	3	1.7	1.7	8.0

	13	3	1.7	1.7	9.7
	14	8	4.5	4.5	14.2
	15	15	8.5	8.5	22.7
	16	15	8.5	8.5	31.3
	17	25	14.2	14.2	45.5
	18	14	8.0	8.0	53.4
	19	14	8.0	8.0	61.4
	20	14	8.0	8.0	69.3
	21	18	10.2	10.2	79.5
	22	13	7.4	7.4	86.9
	23	13	7.4	7.4	94.3
	24	8	4.5	4.5	98.9
	25	2	1.1	1.1	100.0
	Total	176	100.0	100.0	

Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	81	46.0	46.3	46.3
	Female	94	53.4	53.7	100.0
	Total	175	99.4	100.0	
Missing	99	1	.6		
Total		176	100.0		

Race

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	White	119	67.6	70.4	70.4
	Black	39	22.2	23.1	93.5

	Asian	3	1.7	1.8	95.3
	Hispanic	4	2.3	2.4	97.6
	Other	4	2.3	2.4	100.0
	Total	169	96.0	100.0	
Missing	99	7	4.0		
Total		176	100.0		

Disposition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	EP Emergency Petition	157	89.2	90.8	90.8
	Voluntary	2	1.1	1.2	91.9
	MCT No Hospital Visit	13	7.4	7.5	99.4
	CIT No Hospital Visit	1	.6	.6	100.0
	Total	173	98.3	100.0	
Missing	99	3	1.7		
Total		176	100.0		

Suicidal ideation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	With a specific plan	93	52.8	60.0	60.0
	Without a specific plan	62	35.2	40.0	100.0
	Total	155	88.1	100.0	
Missing	99	21	11.9		
Total		176	100.0		

Suicide attempt

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	With plan no means	5	2.8	5.3	5.3
	With plan and means	89	50.6	94.7	100.0
	Total	94	53.4	100.0	
Missing	99	82	46.6		
Total		176	100.0		

Act Completion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	47	26.7	27.2	27.2
	No	104	59.1	60.1	87.3
	Unknown	22	12.5	12.7	100.0
	Total	173	98.3	100.0	
Missing	99	3	1.7		
Total		176	100.0		

Prior Attempts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	32	18.2	18.2	18.2
	No	6	3.4	3.4	21.6
	Unknown	138	78.4	78.4	100.0
	Total	176	100.0	100.0	

Insurance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medicaid	5	2.8	2.9	2.9

	Private	3	1.7	1.7	4.6
	Uninsured	3	1.7	1.7	6.3
	Unknown	164	93.2	93.7	100.0
	Total	175	99.4	100.0	
Missing	99	1	.6		
Total		176	100.0		

Mental Health Diagnosis: Major Depression

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	21	11.9	11.9	11.9
	No	155	88.1	88.1	100.0
	Total	176	100.0	100.0	

ODD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	176	100.0	100.0	100.0

Bipolar Disorder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	9	5.1	5.1	5.1
	No	167	94.9	94.9	100.0
	Total	176	100.0	100.0	

ADD or ADHD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	5	2.8	2.8	2.8
	No	171	97.2	97.2	100.0
	Total	176	100.0	100.0	

PTSD

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	1	.6	.6	.6
	No	175	99.4	99.4	100.0
	Total	176	100.0	100.0	

Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	6	3.4	3.4	3.4
	No	170	96.6	96.6	100.0
	Total	176	100.0	100.0	

Unknown

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	145	82.4	82.4	82.4
	No	31	17.6	17.6	100.0
	Total	176	100.0	100.0	

Number of Previous Attempts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.6	.6	.6
	2	1	.6	.6	1.2
	Yes unknown times	23	13.1	13.3	14.5
	Unknown	148	84.1	85.5	100.0
	Total	173	98.3	100.0	
Missing	99	3	1.7		
Total		176	100.0		

Location

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medical treatment	163	92.6	94.2	94.2
	Outpatient mental health	2	1.1	1.2	95.4
	Home	6	3.4	3.5	98.8
	Unknown	1	.6	.6	99.4
	Other	1	.6	.6	100.0
	Total	173	98.3	100.0	
Missing	99	3	1.7		
Total		176	100.0		

Suicide Attempt*Race Cross-Tabulation

Count

		Race				Total
		White	Black	Asian	Hispanic	
Suicide attempt	With plan no means	4	1	0	0	5
	With plan and means	61	21	1	2	85
	3	1	0	0	0	1
Total		66	22	1	2	91

Suicidal Ideation*Race Cross-Tabulation							
Count							
		Race					Total
		White	Black	Asian	Hispanic	Other	
Suicidal ideation	With a specific plan	61	24	0	2	1	88
	Without a specific plan	40	13	2	2	2	59
Total		101	37	2	4	3	147

Suicidal Ideation*Sex Cross-Tabulation				
Count				
		Sex		Total
		Male	Female	
Suicidal ideation	With a specific plan	42	49	91
	Without a specific plan	28	34	62
Total		70	83	153

Zipcode*Suicide Attempt Cross-Tabulation					
Count					
		Suicide attempt			
		With plan no means	With plan and means	3	Total
Zipcode	20711	0	1	0	1
	20724	0	3	0	3
	20758	0	1	0	1
	20764	0	2	0	2
	21012	0	2	0	2
	21032	0	2	0	2
	21035	0	1	0	1
	21037	0	2	0	2
	21054	1	1	0	2
	21060	0	5	0	5
	21061	0	18	0	18
	21076	0	3	0	3
	21090	0	1	0	1
	21108	0	1	0	1
	21113	0	4	0	4

	21114	0	6	0	6
	21122	0	15	1	16
	21140	0	1	0	1
	21144	1	7	0	8
	21146	2	4	0	6
	21225	0	3	0	3
	21226	0	1	0	1
	21401	0	1	0	1
	21402	0	1	0	1
	21403	0	1	0	1
	21409	0	1	0	1
Total		4	88	1	93

Zipcode*Suicidal Cross-Tabulation

Count

		Suicidal ideation		
		With a specific plan	Without a specific plan	Total
Zipcode	20711	1	0	1
	20724	2	4	6

	20751	0	1	1
	20758	1	0	1
	20764	2	1	3
	20776	0	1	1
	20778	0	1	1
	20779	0	1	1
	21012	3	2	5
	21032	1	2	3
	21037	1	4	5
	21054	2	0	2
	21060	4	3	7
	21061	19	5	24
	21076	3	1	4
	21090	2	2	4
	21108	0	2	2
	21113	3	4	7
	21114	5	4	9
	21122	18	9	27
	21140	1	0	1
	21144	8	9	17

	21146	4	0	4
	21225	3	0	3
	21226	1	2	3
	21401	1	1	2
	21402	1	0	1
	21403	3	1	4
	21409	1	0	1
Total		90	60	150

City * Race Cross-Tabulation

Count

		Race					Total
		White	Black	Asian	Hispanic	Other	
City	Annapolis	6	2	0	0	0	8
	Friendship	1	0	0	0	0	1
	Pasadena	22	3	0	2	1	28
	Deale	1	0	0	0	0	1
	Linthicum	3	2	0	0	0	5
	Davidsonville	2	0	0	0	0	2
	Glen Burnie	20	12	0	0	0	32

	Gambrills	3	0	0	0	0	3
	Hanover	2	1	1	0	0	4
	Riva	1	0	0	0	0	1
	Severn	6	9	1	0	0	16
	Odenton	4	4	0	0	0	8
	Severna Park	5	1	0	0	0	6
	Laurel	3	1	0	1	1	6
	Millersville	2	0	0	0	0	2
	Crofton	8	1	1	1	0	11
	Edgewater	5	0	0	0	1	6
	Crownsville	4	0	0	0	0	4
	Arnold	4	1	0	0	1	6
	Other	15	2	0	0	0	17
	Homeless	2	0	0	0	0	2
Total		119	39	3	4	4	169

Zipcode * Act Completion Cross-Tabulation

Count

	Was the act completed?			
	Yes	No	Unknown	Total

Zipcode	20711	0	1	0	1
	20724	2	3	1	6
	20751	0	1	0	1
	20758	0	1	0	1
	20764	1	2	0	3
	20776	0	0	1	1
	20778	0	1	0	1
	20779	0	1	0	1
	21012	0	5	1	6
	21032	1	3	0	4
	21035	1	0	0	1
	21037	1	4	1	6
	21054	1	2	0	3
	21060	4	3	1	8
	21061	8	14	2	24
	21076	0	4	0	4
	21090	1	3	1	5
	21108	1	2	0	3
	21113	3	3	2	8
	21114	4	6	1	11

	21122	7	20	4	31
	21140	0	1	0	1
	21144	3	10	4	17
	21146	2	2	1	5
	21225	2	1	0	3
	21226	1	2	0	3
	21401	0	2	0	2
	21402	0	1	0	1
	21403	0	4	0	4
	21409	1	0	0	1
Total		44	102	20	166

Discussion

Application of Findings

The data collected was compared to the census data from 2010 for Anne Arundel County, as well as the 2015 census estimates. The demographic breakdown for gender in 2010 was 50.6% female, 49.4% male (DADS, 2016). This was not appropriately reflected in the data collected, in which case women were disproportionately represented at 53.7%.

Racial distribution for Anne Arundel county placed whites at about 75.4%, black at 15.5%, and Hispanic at 6.1% for the 2010 census (DADS, 2016). Even adjusting for the 2015 estimated, placing whites at 75.5%, blacks at 17%, and Hispanics at 7.3%, the data clearly does not reflect the racial breakdown of the population in the county. Blacks are both heavily represented in suicidal youths. Blacks make up a mere 17% of the population but total 23.1% of the suicidal youths. Interesting, Hispanics make up 7.3% of the population but represent only 2.4% of the suicidal youth population, suggesting some kind of protective factor or resilience. Asians, per the census, constitute 3.9% of the entire population, but only 1.8% of the suicidal youths. Of note, the census qualifies that these races listed are exclusionary, with an

entirely separate category for two or more races. The data collection sheet does not specify, although it leaves an option for "other." However, the races are self-reported, and would therefore be expected to align.

Since such a large amount of calls originated from Glen Burnie, it is worth delving deeper and creating a profile for Glen Burnie. It is located in the suburbs of Baltimore, and the most recent estimates place the poverty rate at 8.8%, which is less than the national poverty rate of 14.5%. Glen Burnie has a population that is 22% black, and 66.4% white. Median income as of the 2010 census is $61,966 (DADS, 2016). The total population is 67,639. Interestingly, when looking at the cross-tabs because race and city, there were 20 whites (62%) and 12 blacks (37%) from Glen Burnie included in the data, suggesting that race should definitely be considered a relevant factor for suicidality in youths, since blacks disproportionately represent a higher amount of suicidal youths even in areas with greater diversity.

Pasadena, the second most common location of calls, has a median income of $96,083. This suggests that income level is not a significant factor, since the two most common cities are not similar in terms of income profile. Pasadena is a primarily white area, making up 86.2% of the population, and only 6.9% blacks, which is much lower than the racial breakdown of the rest of the county. The total population is much lower than Glen Burnie, at 24,287 (DADS, 2016). Reviewing cross-tabulations, whites at 78% and blacks at 10%, again shows the continuing trend that black suicidal youth are overrepresented in relation to their demographic. While the literature had talked about acculturative stress in regarding to suicide, most of the data was regarding Hispanic or Caucasians of ethnic origin. However, in light of the pattern noted here, it definitely seems that race appears to be a factor of significance in Anne Arundel.

With regards to suicidal ideation, the data showed that 93 (52.8%) had a specific plan, while only 62 (35.2%) had no specific plan, with 21 (11.9%) not providing an answer. This suggests a high level of seriousness to the situation, since having a plan is considered to be a significant risk factor to completing the act. As mentioned in the literature review, being able to identify those with ideation is extremely useful for preventative measures. If, from a perspective of secondary prevention, a county is concerned about reducing the negative outcomes of suicide, it is worthwhile to note how many youth had a specific plan. Furthermore, looking at suicide attempts showed that 89 had a plan and means, making up fully 50.6% of the responses. Unfortunately, there was a lot of missing data, including 82 non-answers which constitute 46.6% of the responses for the suicide attempt. This data is especially concerning, since such a high percentage experience not just ideation, but also a specific method for being able to follow through with their attempt.

Reviewing the data in regards in zip codes is very similarly in line to the census-designated areas, with 21122 correlating to Pasadena, and 21061 correlating to Glen Burnie. Worrisomely, 100% of respondents from both zip codes -- the areas with the highest proportions calls -- had both a plan and a means in regards to suicide attempts. The numbers fared slightly better with regards to suicidal ideation, with 79% of residents in 21061 having a specific plan, and 66% of residents in 21122 having a plan. However, it should be worth noting that there are more in Glen Burnie, 21061, with a plan, placing it as an area of higher risk for both attempts and negative outcomes. In line with this, 33% of suicidal

youth in 21061 completed the act, compared to 22.5% in 21122. This supports the evidence that ideation, a plan, and a means all play significant roles in contributing to suicidal acts.

Other risk factors of noted in literature include a history of mental illness, however the data we received did not seem strongly suggestive of such a correlation. The mental diagnosis with the highest frequency was Major Depression Disorder, which comprised of only 11.9%. Some diagnoses, such as Oppositional Defiant Disorder, had no respondents. Bipolar was the second more frequent, with 9 respondents having a diagnosis, making up 5.1% of the data. However, since early identification and treatment of disorders was acknowledged to play a large role in improved outcomes, it would be suggested that respondents who reach out to the warmline should have follow-up psychiatric care, as the data collection sheet cannot appropriately reflect if a youth has a mental disorder but has not been diagnosed. Since we are aware of the link between mental health and suicide, it would be prudent that any youth intimating suicidal ideation should receive mental health care, as there may be an underlying condition that has yet to be diagnosed.

Recommendations

After participating in this research and reviewing our findings, there are several clear recommendations we believe the Anne Arundel County Crisis Response System and Mental Health Agency should consider moving forward.

First, while the majority of respondents were white, black individuals were disproportionately represented in the data. This disparity is worth noting, and should be investigated further, but most likely not through the Crisis Response System. Developing a survey asking more in depth questions about mental health and potential risk factors that can be distributed to black youth in Anne Arundel County through the school system or other means would be helpful in understanding why suicidality is more common in black youth than other racial groups.

Second, we recommend that more resources be allocated to the areas of Anne Arundel County where our research has shown the majority of suicidal youth live in, specifically, the cities of Glen Burnie and Pasadena. While Pasadena may not have the socioeconomic profile of an area in need of further resources, our research shows that it is a vulnerable area for suicidal youth and more preventative efforts are needed to reduce the risk of self-harm. As stated previously, 100% of the respondents from these two areas reported having both a plan and means to attempt suicide. This is a staggering statistic that should not be taken lightly, and the Anne Arundel County Mental Health Agency should contact community stakeholders in those cities to develop and implement plans to address the problem of youth suicide.

Finally, there are many improvements that can be made regarding the data collection sheet used by the Crisis Response Team. When analyzing the data we noticed that the majority of questions being asked were either left blank or marked “unknown”. This suggests that that the data collection sheet needs to be tailored in order to actually provide information that can be used to better understand the needs of suicidal youth in the county. While it was successful in capturing demographic data such as age, race,

and location, it was not helpful in determining the potential causes and risk factors associated with the individuals' suicidality. The only question that addresses these areas is concerning mental health diagnoses, and very few had any diagnosis options selected. Since these data collection sheets are conducted when someone calls in or a team member is responding to an emergency petition it makes sense that the youth have not yet been diagnosed with a mental disorder. Perhaps shifting the focus from a clinical diagnosis to symptomatic and risk based questions such as: *"How many days have you felt suicidal?", "Do you use drugs or alcohol, if so how often?", "Is there an event that happened recently that triggered these feelings?"* and so on would help to better address the underlying causes of the individual's state of being. By asking questions to determine sources of risk within the population, the Anne Arundel County Mental Health Agency will be in a better position to enact preventative interventions for youth that are specific to the factors that lead them to feel suicidal.

Conclusions

Through careful analysis of 176 data collection sheets provided by the Anne Arundel Crisis Response System team regarding youth suicide and the use of a suicidal "warmline," our study calculates demographic frequencies, relationships between variables and creates supporting evidence to help the county assess areas and people of need to move forward in the creation of effective and efficient suicide prevention programs. Based on our literature review, The Centers for Disease Control reported, annually in the United States, an approximation of 157,000 youth aged 10 to 24 receive emergency medical care for self-induced harm. With this national average statistic, we compared it amongst the averages for the state of Maryland, where suicide is the third leading cause of death amongst youth aged 15 to 25 years old. Then more specifically, comparing these averages to Anne Arundel County, where although suicide rates are lower than the national average, the county has the highest average in the state of Maryland. Since, youth suicide is not caused by one specific factor, we examined the relationships between different variables with the data collection sheets provided by The Anne Arundel Crisis Response System team. After inputting the data into SPSS, we conducted a frequency analysis on demographics. A couple key demographic frequency findings showed more women used the warmline than men at 53.7% female, 49.4% male and the most calls came from Glen Burnie and Pasadena. Then, using cross- tabulations, we evaluated the relationships between demographics with variables such as ideation and amounts of suicide attempts. A noteworthy relationship is between Glen Burnie youth and plans for suicide, which we found to be extremely high, placing it as an area of higher risk for both attempts and negative outcomes. Although these data collection sheets provided a basic framework in examining the crisis of youth suicide in Anne Arundel County, they lacked questions about mental health and potential risk factors that could help better understand the needs of suicidal youth in the county. Overall, we achieved our purpose in providing the Anne Arundel Crisis Response System with evidence to enhance their suicide prevention programs and for the county to create new strategies of treatment and prevention to combat youth suicide.

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