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The Modifiability of Risk Factors Associated with Adolescent Suicide and its Preventions

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I.   ABSTRACT

Adolescent suicide has been of major concern in the past few decades, with the rates steadily increasing every year. Suicide can be defined as the act of intentionally taking one's life. Adolescent refers to children between the age of 13 and 19, although the term will be used interchangeably with 'teen' throughout this paper. The purpose of this study had been to identify the risk factors of suicide associated with children of this age range, and propose preventative measures based on the modifiability of these risk factors. In order to achieve this, the two search catalogs utilized were the Wayne State Library and Google Scholar. Keywords included "adolescent suicide risk factors", "teen suicide prevalence rates", "alcohol abuse and teen suicide", "mental illness and teen suicide", "adolescent suicide demographics", "teen sleep times and suicide". Many articles that were found using Google Scholar that were restricted were later accessed through the Wayne State Library. Five common risk factors associated with adolescent suicide were investigated: demographics, alcohol abuse, mental health, bullying, and sleep deprivation. Demographics and mental illness suggest that males and older adolescents are more prone to suicide. Alcohol use show trends of younger adolescents partaking in substance abuse, which lead to an overall deterioration of health. Both bullying and sleep deprivation show females being affected the most, leading to a higher rate of suicide ideation and attempts. In order from most to least modifiable, the risk factors are sleep patterns, demographics, bullying, alcohol use, and mental health. More field work needs to be conducted, however, to test the true extent of the modifiability of each risk factor.

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II. INTRODUCTION

To say that adolescent suicide is a problem would be an understatement. According to the Centers of Disease Control (CDC) reports in 2016, suicide is the second leading cause amongst adolescents, resulting in nearly 6,200 deaths in that specific year (National Institute of Mental Health, 2018). This number stays relatively close each year but does not account for the extended cases of suicide ideation. In an effort to understand why suicide is a prevalent problem amongst adolescents, this report will be a literature review comprising of the risk factors associated with teen suicide and possible prevention methods associated with each risk factor. To evaluate risk factors associated with adolescent suicide is no easy feat as there are many variables to consider. For example, one aspect to assess would be the acuity or chronicity of the risk factor- which can be quite challenging to evaluate. This is because determining such a particular characteristic of a risk factor requires a degree of subjectivity from each individual's interpretation of what constitutes as chronic or not. Some researchers use the duration of impact of the risk factor as a determination factor for chronicity. To elaborate, acute risk tends to only last anywhere from minutes to days, whereas chronic risk factors can last anywhere days to years. The longevity of this, as mentioned previously, would be conditional to a researcher's interpretation of the severity associated with the risk factor. In this literature review, the approach is straightforward; identify 5 common risk factors of adolescent suicide, discuss its prevention, and finally assess its extent of modifiability.

A. Methodology

A total of 22 sources were compiled to help aid this literature review. The two most commonly utilized search engines were Google Scholar and the Wayne State Library catalog, with very minimal use of the general Google search. Most applicable results were obtained from keywords consisting of "adolescent suicide risk factors", "teen suicide prevalence rates", "alcohol abuse and teen suicide", "mental illness and teen suicide", "adolescent suicide demographics", "teen sleep times and suicide" and "adolescent suicide and bullying". The search results were filtered based on year and relevance; only articles from 2010 and onwards were accepted, and all except one source were scholarly articles. Furthermore, any article that was founded by Google scholar and was blocked due to required payment to access were later acquired through the Wayne State Library catalog. Originally a research focused on risk factors specifically for male teen suicide, the lack of applicable results due to insufficient previous research encouraged the literature review to be broadened to include all adolescents. Furthermore, non-useful key terms included "ethnicity and adolescent suicide", "genetic disposition and adolescent suicide" and "sleep time prevention and teen suicide". This is likely because these searches were too specific, and the lack of research in these domains along with the inclusion and exclusion criterions made it difficult to locate much information of value.

B. Objectives

The objective of this paper is to identify the risk factors associated with adolescent suicide, its preventions and modifiability in hopes of understanding what efforts must be taken to reduce the prevalence of adolescent suicide. As mentioned previously in the methodology

section, the original intent had been to investigate the risk factors and prevention associated with

male teen suicide. After much research, however, it was evident that not much attention had been

allocated towards males exclusively in this regard. After broadening the search results to include

both males and females, a plethora of research articles had been obtained. If any exclusive

mention of male statistics in respect to suicide was present, it was likely in comparison with an

equivalent female statistic. For this reason, much of this research is tailored not only towards

investigating the risk factors of teen suicide, but also how the risk factors affect males and

females differently.

C. Keywords Defined

Word	Definition
Suicide Risk Factors	Characteristics that precede the suicidal behavior or suicide and that increase the likelihood of suicidal behavior and suicide. (National Institute of Mental Health, 2018)
Protective Factors	Variables that decrease the probability of suicidal behavior or suicide. (King et al., 2013)
Suicide Ideation	Thinking about or planning suicide. (National Institute of Mental Health, 2018)
Suicide Attempt	Injuring oneself with the intent to die. (National Institute of Mental Health, 2018)

Acute Risk Factors	Dynamic and changeable risk factors. They tend to have a definite time duration, lasting anywhere from minutes to days. (King et al., 2013)
Chronic Risk Factors	Risk factors that are static or unchangeable and demonstrate an elevated lifetime risk. (King et al., 2013)

III.   LITERATURE REVIEW: RISK FACTORS

A. Demographics

A child's demographics surprisingly plays a larger role in their risk to pursuing suicide than one might perceive. Such demographics include gender, age, and race. In respect to gender, it can be noted that boys are more likely to commit suicide than girls (King, Foster & Rogalski, 2013). In fact, by the end of the teenage years, the prevalence rate of suicide is 5 times more for boys than for girls (King et al., 2013). This statistical figure may be so due to a variety of reasons, including both the biological makeup of boys as well as the social constructs that confine them. To elaborate, it is noted that boys attend fewer primary care sessions than do female- which gives room for several risk factors to go unchecked (Rice, 2015). Right from the start of their childhood, many boys are unable to get the services required for them to grow healthy mentally. The notion of "masculinity" and what term entails tends to push boys towards a more individualistic lifestyle, which also is directly associated with the lack of seeking health services- particularly mental services. Biologically speaking, testosterone levels have also been directly linked with more aggressive behaviors in males, which include suicide (Rice, 2015). On

a final note, boys also tend to have more access to lethal means of suicide such as firearms (King et al., 2013). On the flip side, however, while males are more likely to commit suicide, females are more likely to have suicide ideation (King et al., 2013). From this, it is evident that, although boys are more likely to commit suicide, the gender difference should play a small role when deciding how to ensure that all adolescents are receiving the care they need.

While the correlation between age and suicide attempt is weaker than that of gender, the association still does exists. On average, older teens are more likely to commit suicide than younger; although younger teens have higher rates of suicide ideation (King et al., 2013). There are a few things that can explain this particular trend. For one, older teens are likely to face more stress in their personal life as they grow older. These stressors could include, but are not limited to, mental stability, familial problems, identity-role confusion and more. Furthermore, older teens have easier access to acquiring lethal means as opposed to younger teens, which contribute to the higher prevalence rate of suicide in this age range.

To address the issue of demographics in terms of its modifiability is quite challenging- at least from a surface level understanding. After all, one's ethnicity, race, and gender are all inherent qualities of an individual that cannot be modified. What can be modified, however, are the actions of these different subgroups as a result of their demographics. For example, it was previously established that older teens face more stress than younger teens. In attempt to modify these, the stressors that older teens face must be addressed. As mentioned previously, one stressor commonly faced by adolescents of this subcategory is identity role-confusion. A way to tackle this issue is to delve into how this stressor can be modified; as research shows, adolescent identity-role confusion is usually developed with a growing relationship with peers (Ragelienė,

2016). This is largely due to the fact that being surrounded by peers builds good relationships and prevents the stagnation of identity exploration. In other words, the more adolescents are given ways to build relationship with their peers, the more the likely they will feel a reduce in stress with their identity-role. With this, it should, theoretically, lead to an overall better mental health for the adolescent, and thus reduce the risk of suicide. This is just one example of how demographics can be modified; several other methods can be implemented as well depending on which aspect is being observed.

B. Alcohol Use

Alcohol by far is one of the most strongly correlated risk factor to teen suicide. As the figures follow, teenagers that partake in heavy drinking are twice as more likely to report suicide attempt than young adults or their non-drinking peers (McLoughlin, Gould & Malone, 2015). In fact, studies have shown that nearly a third of high school students had begun drinking from their younger adolescent years, and of course, this is merely the number of reported cases (Swahn, Bossarte, Ashby & Meyers, 2010). The true figure may be even higher. These same studies had further conducted research to show that drinking in adolescence had a statistically significant correlation with suicide attempt and ideation. The implications of this correlation have both a positive and negative aspect. Negative, because it is now known that many children fall victim to the influence of alcohol and take their lives. Positive, because by knowing this association, there is a high chance that something can be done about this issue. Looking at the cases of suicide within adolescents, nearly half of the cases of the suicide had the teen intoxicated by alcohol at the time of the attempt (Obrien, Sellers & Battalen, 2018). Furthermore, it is important to

observe that as the severity of the alcohol drinking goes, so does the likelihood of suicide

(Obrien et al., 2018).

Through the research of many clinical studies, it was noted that the likelihood of

reporting suicide attempt and ideation was reduced when teens believed that alcohol was either

somewhat or very harmful to personal health- irrespective of the gender of the teen (Swahn et al.,

2010). However, this is as far as the gender difference goes; the same studies had suggested that

friends disapproval of alcohol had reduced the likelihood of teenage girls attempting suicide,

whereas parental/adult disapproval of alcohol had reduced the likelihood of teenage boys

attempting suicide. This difference may be due to the fact that girls are more malleable to peer

pressure and what their friends think than boys are. In fact, disapproval from adults and friends

was a good causative at reducing likelihood of suicide attempts in both alcohol and non-alcohol

teenage consumers. Because of this, alcohol abuse has the potential of being a modifiable risk

factor.

At the very center of this problem is the issue of bringing out a sense of self-awareness

within the individual so that they may reflect on the action of alcohol consumption. If they feel

as though the act of consuming alcohol is deemed wrong by their friends and parents, they would

be less inclined to partake in something that is they perceive as less socially acceptable. Thus, the

likelihood of the child attempting suicide should decrease significantly. While this approach

focuses on mainly the child, it is important to note that this is simply one part of the component.

To achieve the optimal level of effectiveness, it takes more than just the child to adjust. One

other facet to consider is the level of care by clinicians when providing care to the children they

see. In this aspect alone it is quite evident on the discrepancy between the type of care a child

should receive, and what they actually do receive. For example, in a situation where a child is

brought into the hospital for attempting suicide, due to time constraints and other barriers the

doctors face, they will likely only focus on attempting to treat the primary concern, suicide,

without delving too deeply into other aspects such as alcohol use (Obrien et al., 2018). This of

course, brings down the level of quality care; especially considering that the root of the problem

can be addressed to make a difference if some degree of attention is cast towards it.

As grave as this risk factor is, its path to successful modifiability is not an impossible

one. It has already been established that teens are likely to be heavily influenced by the world

around them. Perhaps the most simplistic, yet not as effective route would be to educate teens on

the adverse effects of alcohol, as well as encourage their peers to stay away from the act of

consuming alcohol. While current school systems already incorporate a health class which

includes a small seminar on the adverse effects of alcohol, it simply is not enough. In order to see

any lasting change would be to create an environment where teens do not have any temptation to

reach for alcohol- an environment where the peers and adults around them do not give them the

approval or reason to use alcohol.

C. Mental Health

It is no secret that kids who either have suicide ideation or attempt suicide tend to be

linked with some sort of mental disorder; the most common one being depression. In fact, in

general, nearly half of all lifetime cases of mental disorders begin at the age of 14 (Frankel,

2014). Of those that have a psychotic disorder, the chances of suicide nearly triples (Frankel,

2014). As it has been already established previously, many kids, namely boys, do not frequent to

the pediatrician's office as they should. Thus many of these cases go unnoticed and unchecked, giving ample time for the mental diseases to grow within the child- especially in this crucial stage in their development. In fact, according to one study, parents are unaware of 90% of the suicide attempts made by their children (Friedman, 2006). This is problematic as parents play a crucial role in developing their children's mental well-being in this critical stage in life. With parents bearing no knowledge of their children's suicidal tendencies, it makes implementing an intervention much harder as parents are unable to identify if their child has been acting on suicidal ideation or not.

There are a few reasons why mental illness amongst adolescents may go unchecked. As one study found, many kids between the age of 12-18 have poor mental health literacy, stigmatizing attitudes towards those with mental illness, and lack of specific knowledge and skills needed to provide social support and prompt help-seeking (Hart, Mason & Kelly, 2016). In other words, not only do they not know how to deal with their own mental illness (if they have it), but they also do not know how to help others who may have it either. According to the same study, students with mental illness tend to consult in other peers with mental illness rather than an adult professional. It is rather reasonable to conclude that when adolescents consult in each other about their mental illness and neither possess the literacy nor the knowledge of how to provide help for the other, the mental illness they have within themselves is likely to go untreated. In response to this issue, researchers of this study had created Mental Health First Aid Kit for adolescents (Hart et al., 2016). This kit was essentially designed to bridge the gaps in knowledge amongst adolescents about various mental illness and how they can be treated, including how they can help their peers who have mental illness as well. In theory, this approach

should work, as it addresses the major concerns that block the path in alleviating any mental

illness. In reality, the study resulted in many students opting out as the study progressed, forcing

the researchers to opt out certain points of the data, the general conservative consensus was that

this approach was effective. The idea behind this approach was reasonable, perhaps the next step

to this would be have higher retention in students participating. One possible way to do this

would be to provide incentives to the teens to see the intervention through. What those specific

incentives are would likely be determined by the researcher depending on what the specific

cohort of adolescents' desire.

As another intervention method, it would be natural to assume that screening teens at

schools for mental illness should help reduce the cases substantially. For example, one screening

method included a researcher who had identified 4 biomarkers that were prevalent in victims of

schizophrenia and bipolar disorder as a way to screen for mental illness and the predict the

likelihood of suicide ideation (Frankel, 2014). This study, while proven to be effective, was done

at a small scale. While this method could potentially be used at schools for adolescents, more

studies that are larger to scale must be conducted in order to prove its efficiency. In theory, this

should be great at detecting students that would need assistance. After all, this is the current most

widespread method of approach in dealing with this issue. Recent studies, however, have shown

that screening is largely an ineffective method; kids who have a history of mental illness

typically do not want to involve in school screenings largely due to the stigma associated with it

(O'Mara, Hill, Cunningham & King, 2012). Perhaps the next best options would be to screen

these children through a pediatrician's catalog, however, this service would really be open to the

children who attend yearly check-ups at least at a pediatrician's office. As mentioned previously,

this method is not too promising either; many adolescents struggle to keep up with their yearly check-ups.

Going back to the central issue of helping mental illness, the solution does not lie with directly with screening for children itself; rather, alleviating the stigma associated with visiting health services and addressing other reasons teens may have for not visiting their pediatricians. Reducing the stigma would prompt students to seek more help, and in the case of the Mental Health First Aid Kit, see an intervention through. This is certainly an uphill battle to achieve; attempting to reducing stigma may take years, even decades. While this is not an immediate solution, it is more long-lasting. One thing to note, however, is that there are many components at play to create a structural problem. For example, while it has been indicated that stigma surrounding receiving treatment for mental illness is prevalent, a few factors consitutates to this stigma aside from the typical peer and familial pressure. To elaborate, the current foundation of our societal construction are at odds with seeking help for mental illness. While physical injuries are given infinite amount of time to heal, mental illness treatments are only allowed a few visits per year, and some insurances do not include mental health at all (Frankel, 2014). Part of reducing the stigma around mental health would be to achieve mental health parity, where mental health is treated in a similar fashion physical injury. As one study reported, "unless action is taken to reduce the stigma, four out of five people with mental conditions will continue to not receive the right kind of help—help that works." (Frankel, 2014). To continue this snowball effect, the worse one's mental health becomes, the more likely the adolescent is to have suicide ideation and attempts. To fix how insurance companies handle mental health would be to give them a reason to include it; they are a business after all. Currently, health insurance companies

have no obligation to provide additional services, including mental health (Frankel, 2014). One possible way to encourage this social change would be to educate the public and these businesses what the benefits would be to help treat mental health. To take it one step further, the more commonplace the treatment of mental illness can become, the more society collectively can help reduce the suicide rate amongst adolescents.

D. Bullying/ Cyberbullying

If there is a school or institution, there is likely to be bullying or cyberbullying in varying degrees. While bullying is an olden term used to denote the act of harming, intimidating, or coercing an individual, cyberbullying is a more recent development that classifies as the "use of the Internet, cell phones, or other technology to send or post text or images intended to hurt or embarrass another person." (Ruedy, 2008). Needless to say, any form of bullying done to an individual is both a risk factor and a stressor of teen suicide. As far as the statistics go, girls are more likely to be bullied than boys, and are more likely to be cyberbullied than regular bullied (Messias, Kindrick & Castro, 2014). On the flip side, according to the same study, boys are likely to bully than girls. Of those that reported being bullied, 9.5%, 14.7% and 21.1% attempt suicide due to bullying, cyberbullying, and/or both respectively (Messias, 2014). These numbers are likely due to the fact that forms of bullying cause sadness and depression, which ultimately leads to suicide ideation and attempts.

While aggression and bullying can be controlled, there are a few limitations from being able to do so. For one, to prevent teens from partaking in bullying, whether it be on the giving or receiving end, a more authoritative figure must overlook the actions of these kids. This could be

anyone including parents, school administrators, teachers, or even security cameras. The only caveat- kids are unlikely to bully in an area where they suspect someone might intervene (BeSecureFORMe, 2018). Therefore, it is hard to detect when and where a child is getting bullied. Bullying comes in many forms, the two most prominent would be physical and mental (in which mental could be in-person or online). While installing security cameras may be able to reduce physical encounters, it does very little to prevent mental and cyberbullying. While one possible solution could be to encourage students to step forward if they've been bullied, that in and of itself is problematic; nearly 60% of kids getting bullied do not tell an adult when they've been bullied (BeSecureFORMe, 2018). This is likely due to fear of the adverse effects that may come as a result of the perpetrator coming to know of the complaint or the mentality of appearing weak if adult assistance is required.

The other effects of bullying on the victims are low-self-esteem and a sense of isolation. According to the Interpersonal Theory of Suicide, adolescents that have suicide ideation or have attempted suicide are likely the ones that have two psychological factors at play within them: perceived burdensomeness and thwarted belongingness (Orden et al., 2010). These two factors can be, but not always, a result of bullying. Perceived burdensomeness is a sense of the adolescent feeling as if they are a liability coupled with self-hatred. Thwarted belongingness, on the other hand, is a dynamic emotional state which comprises of both interpersonal and intrapersonal factors (Littlewood et al., 2017). The feeling of prolonged loneliness due to being singled out during incidents of bullying coupled with the occurrence of heightened emotions such as fear, anxiety, anger, shyness, and pessimism result in the increase likelihood of suicide ideation and attempt (Orden et al., 2010).

The attempt to prevent bullying needs to be addressed in two forms: the physical and the virtual. As mentioned before, security cameras tend to decrease the physical bullying encounters, but does not completely eradicate it. In order to account for the incidents that go unnoticed, another method must be implemented to cease these physical assaults. For one, it would be worthwhile to ask parents to investigate not whether their kid is being bullied, but rather, if they are the one bullying other kids. According to one research, children who often partake in acts of aggression on other children often do so because they are lacking in some other social aspect (Niwa, Way & Hughes, 2014). In order to make up for the lack of control in that area, they assert their dominance on their kids in order to retain some control. If parents can identify whether their kid is bully, there could be some long-lasting transformative change taking place. Parents could be educated on how to deal with their child being a bully and hopefully help them cease the problem. Another option would be to encourage victims to seek help in their parents- which would arise from a deep level of trust between parent and kid. As mentioned before, however, the current trend suggests that this later suggestion is not too effective in ending the bullying.

Cyber-bullying is an issue that needs to be dealt with separately because the method needed to eradicate this is different than that of physical bullying. Unlike physical bullying, however, the perpetrator cannot be held accountable. Currently there is no statute to protect against anonymous cyber bullying or cyberbullying by minors (Ruedy, 2008). In other words, if a teen attempts or suicide due to the maltreatment by an individual online, this individual legal bears no responsibility for the action. Amending the law is a long and tedious process, and in a system where time is crucial, it simply is not feasible to rely on the system changing itself especially when it is left to whims of elected officials. Instead, a more effective approach would

be for parents to put parental controls on social media sites which allows them to monitor the activity of their kid when they are on these sites. This way, they would be the first ones to be notified if their child is facing any issues with online bullies.

E. Sleep Patterns

Evaluating sleep patterns among adolescents was strategically placed last among the risk factors. Not only is sleep patterns a well-known risk factor of teen suicide, it also is an overarching risk factor for the others mentioned above: alcohol use, mental illness, and bullying, along with a few additional factors. According to physicians, the average sleep time a teen should get is a little over 9 hours (Winsler et al., 2015). In reality, due to early school start times and late bedtimes, the average student clocks in at roughly 6.5 hours per night, compared to the mere 3% of adolescents who achieve the recommended 9 hours (Winsler et al., 2015). Having nearly two and a half hours of less sleep has its adverse effects- the most critical one being suicide. In fact, according to one research, for every hour of less sleep, the odds of seriously considering suicide, suicide attempts, alcohol use, and falling into depression increase significantly (Winsler et al., 2015). Another study had specifically found this odds risk to be 2.5 (Fitzgerald, Messias, & Buysse, D, 2011). In other words, teens who report having sleeping problems or lack of sleep are 2.5 times more likely at risk for attempting suicide than teens who do not have any complaint. The issue becomes even more concerning when 69% of teenagers report to have insufficient amount of sleep, with the most contituating group being females and Asians (Winsler et al., 2015). That being said, however, the strongest relationship between lack of sleep and suicidality is for males. So while, on average, females and Asians get less sleep,

males are more prone to act on suicide ideation (Winsler et al., 2015). Furthermore, Caucasian

students show the strongest correlation between suicidality and feeling hopeless (Winsler et al.,

2015). This is critical to note as, if gone untreated, the feeling of hopelessness could develop into

something more malignant such as depression, which is also another known risk factor of

suicide.

One would reasonably believe that in order to fix the problem of lack of sleep in teens, it

would be natural to advice these kids to go to bed early. This, however, is easier said than done;

the time an adolescent fall asleep is not the indicator of how much sleep they obtain, but rather,

what time they are expected to wake up (Temkin, Princiotta, & Ryberg, 2018). This also helps to

explain why females and Asians obtain less sleep despite going to bed around the same time as

all other students; these students are likely waking up earlier than their counterparts. This is

expected– nearly 40% of adolescents have such a strong evening chronotype that falling asleep

early is nearly impossible (Winsler et al., 2015). So even if they had wanted to sleep earlier than

usual, they would find much difficulty in doing so simply due to the restrictions of their own

biological clocks. Adolescent biological clocks seek for late bedtimes and late wake up times,

which together improve the overall quality of sleep. Unfortunately, most middle schools and

high schools begin early in the morning, thus limiting how much quality sleep a student can

obtain.

Dealing with the modifiability of sleep as a risk factor approachable yet complex. The

positive side to this case is that more adolescents are likely to come in for treatment of sleep

problems than for mental illnesses due to the perceived stigma of both issues. The biggest caveat,

however, is that treating sleep problems in and of itself is much more difficult than initially

regarded. Perhaps the most obvious solution to this problem would be to initiate later school times. This, however, is not feasible– most schools will likely not cave into later school times even if they are provided with a plethora of scientific evidence to suggest that kids at their school will perform better. Even if the school were to consider this idea, it would be a long and tedious process for the proposal to get approved by the school board of directors. Not to mention, this solution puts the responsibility completely on external circumstances (the school, the board of directors, etc.) rather than helping the adolescents themselves.

Since it was already previously established that urging kids to sleep earlier would ineffective due to their chronotype, other aspects of improving sleep must be observed. For example, it was noted that ethnic minorities, particularly Asians, tended to get less sleep than Caucasians. This relationship may exist as so due to additional stressors ethnic minorities, including Asians, face related to race: racism, perceived discrimination, poverty, high expectations, etc. So, in theory, one way to reduce the risk of sleep deprivation would be through an indirect method of tackling the underlying factors that were mentioned. Poverty, just like suggesting later school times, is an external circumstance that an adolescent cannot control, therefore should not be held accountable for fixing a familial issue. Even if they wanted to help fix it by, for example, getting a job to help the family situation, it would likely add another stressor to the kid and not help them acquire better sleep quality regardless. Perceived discrimination, however, is something that can be potentially reduced. For adolescents, perceived discrimination comes in two forms: peer-induced and adult-induced (Niwa et al., 2018). In one study focusing on the vulnerability of minority groups, Asian adolescents were found to be the most vulnerable to peer discrimination due to high standard expectation which, on the flip side,

protected them from adult discrimination (Niwa et al., 2018). Adult discrimination was subtly

more apparent in adolescents of African and Hispanic origins, and furthermore of males due to

their perceived aggressiveness (Niwa et al., 2018). Regardless of whether the discrimination was

peer-induced or adult-induced, all adolescent victims showed signs of eventual feelings of

hopelessness and depression.

The best way to approach this issue of discrimination would be similar to that of

bullying; educating peers and adults of being more accepting of children of minority groups and

providing social care for adolescents who require help assimilating within their social sphere.

Furthermore, the high standard that Asian adolescents are expected to perform at is a stressor not

only from their peers, but also from their parents and their Asian community. One way to

specifically help this group would be to ask Asian parents to break away from this stereotype and

show more leniency towards their child's performance. This, of course, does not imply that they

should stop caring altogether, but it does suggest that their child is likely to produce better results

if they are not put constant pressure of performing at a high standard. In theory, with the

reduction of both the social discrimination and expectations as a stressor, students should be able

to obtain better sleep, which in turn helps reduce suicide ideation and attempts. Studies on this,

however, are very limited. Therefore, in the future, it would be helpful to note how the

relationship of sleep and suicidality amongst adolescents' changes with gradual decrease in

social stressors.

IV. DISCUSSION

A. Modifiability of Risk Factors

After much consideration, the list of risk factors from most to least modifiable are as follows: sleep patterns, demographics, bullying, alcohol use, and mental health. It is important to note that, as mentioned earlier in the introduction, the order of chronologicity of these risk factors are highly dependent on the researcher evaluating them. In this particular literature review, the order to assess modifiability included 3 criterions: how much is this risk factor controlled by conscious human thought, how practical is it to implement an intervention, and how long would it take to reduce the effects of the factor. To look at the more comparatively acute risk factors, sleep patterns and demographics, these two risk factors are evaluated in a similar way- by addressing the stressors associated with these risk factors and finding ways to limit them. In both, modifying the risk factor by itself would next to impossible, due to the inherent qualities of both risk factors. But each risk factor is influenced by a collection of underlying stressors that dictate to what extreme these factors are critical. One of the reasons why sleep patterns was placed ahead of demographics was because sleep patterns, as a risk factor, has more specific stressors yet general preventive measures whereas demographics has more general stressors with specific preventive measures. For example, sleep patterns stressors include stressors that adolescents face in their day to day lives such as high expectations, early wake up times and strong evening chronotypes. These kinds of stressors are more easier to tackle because not only do they have direct solutions, but also because these stressors are situationally existent due to external influences. General approaches can be used to help reduce the effects of earlier wake up times and high expectations, and theoretically adolescents should see an increase

in quality of sleep. Demographics, however, has very broad and general stressors such as identity-role confusion, which can be harder to tackle due to the wide variety of solutions depending on the unique characteristic of the adolescent. For example, how male stressors are addressed could be very different to how female stressors are addressed. This division is also apparent in ethnicity, race, and socioeconomic aspects. Even within this, to cater to each individual's persona can be challenging, and would require an approach that is distinctive to the adolescent.

Trailing behind demographics would be bullying. This was placed in the center of the list because much of its intervention included being able to prevent perpetrators from further attacks by either educating them to be better or by catching their actions through cameras. Furthermore, victims could be protected from cyber-bullying through the use of parental controls. In essence, much of this prevention can be controlled by human conscious- teens choose to bully their peers for various reasons and there is little external influence that dictates their actions. If such a prevention were put it place, although the effects wouldn't be seen as immediately as the first two risk factors, but because it is controlled by human conscious, it would certainly show faster than the prevention efforts than the last two risk factors. One of the major obstacles to bullying is not preventing bullying alone, but also treating the after effects of bullying. Many adolescents face traumatizing events during this experience, whose effects can last for a very long time after the incident. Extra preventative measures need to be placed beyond just preventing bullying to ensure that any traumatizing feelings do not develop into something chronic leading to suicide.

Finally, alcohol use and mental health are placed towards the end as the least modifiable risk factors. It is not that they cannot be modified, but rather, are chronic risk factors that would

take several months, if not years, to overcome. Like demographics, alcohol use and mental health have general stressors with very specific approaches depending on each adolescent's circumstance. There is, however, one additional aspect which makes alcohol use and mental health harder risk factors to modify than demographics, and that is the psychological component that plays a part in both. Unlike demographics, the use of alcohol and their mental health is largely impacted by how adolescents perceive themselves and their surroundings. If they tend to have a psychologically negative perception, it becomes much harder to break this barrier and have a lasting effecting. Alcohol use does place ahead of mental health because alcohol use, despite being a result of many stressors like mental health, is an action whereas mental health is a sense of being. Actions are easier to control than intrapersonal problems because it gives room for external influences to take part in preventative process. Regardless, however, adolescents are less likely to come in willingly to treat either of these problems than the other risk factors, presumably due to the stigma associated with having these problems and receiving treatment for them. Because breaking a stigma coupled with helping a psychological problem is a difficult feat to achieve for long-term results, alcohol abuse and mental health would be considered the least modifiable risk factors.

B. Conclusion

Through this research we have seen 5 major risk factors associated with adolescent suicide. Each one possesses a significant threat to individual teens, but to some degree, can be modified if the right steps are taken. Some take longer than others; risk factors such as sleep patterns and demographics are considered acute risk factors and would likely not take a long

time to modify. On the other hand, risk factors such as mental illness and alcohol abuse certainly could possibly take months to years to see even a slight improvement, which is why they would classify as chronic risk factors. Despite this, however, it is evident that in order to reduce the rates of adolescent suicide, it is important to note that prevention comes in different forms. One form of prevention may directly address the victim (as in the case with alcohol use or sleep patterns). Another form would look at external factors that could be affecting the individual (as in the case with bullying or demographics). Regardless, however, it is important that with the knowledge of how to reduce these risk factors, that necessary and appropriate steps are taken.

The overarching question of this research paper, to assess the risk factors of adolescent suicide and evaluate its modifiability, had been met. Doing this research, however, it was very apparent that approaching the issue of adolescent suicidality is not straightforward. It is a multi-layered problem which requires a complex level of understanding the different facets that affect it. For this reason, it would take perhaps measures upon measures to reduce the effects of even one risk factor amongst many. One of the obstacles in finding ways of decreasing the prevalence rate of adolescent suicide is the lack of practical pre-existing interventions currently in place. Due to the deficiency of research on prevention for adolescent suicide, especially regarding the different aspects of adolescents such as their demographics, it can be, at best, theorized what would ideally serve as an appropriate intervention given the current level of understanding of the problem. Going forward, much more field work needs to be completed in order to obtain empirical data regarding how these preventions affect the individual aspects amongst adolescents and whether they decrease their likelihood of attempting suicide. Until then, public health practitioners, associated adults, peers and friends would have to do their best

ensuring that adolescents receive the care and attention they require to achieve a personal level of optimal health.

V.   ACKNOWLEDGEMENTS

VI.   REFERENCES

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VII.   ADMISSION OF ORIGINAL WORK

"This paper represents my own individual work in accordance with University regulations."

*Electronic Signature:*_____Nastaeen Tajin_____