“The Adolescent Emotional Brain and Physical Outbursts”

*Background*

The adolescence is a period in human development where increased autonomy, sense of identity, forming of social circles, and risk-taking behaviors emerge within a defined age group. It is during these times when emotions override rational decision-making abilities and become the primary mover in, at the time, important choices that can significantly impact the youth’s biopsychosocial construct that they have knit together to what they perceive as reality.

This is also when the adolescent begins to develop a stronger sense of right and wrong, usually accompanied by the newfound concept of consequences, legalities (e.g., pairing well with risk-taking behaviors including underaged drug and alcohol use), chronic positive or negative emotional states (e.g., constant fear, panic, or built-up stress is symptomatic of anxiety), among other feelings of self-concept and self-esteem that are challenged by themselves or their peers. Ultimately, the individual tends to fall into a state of greater vulnerability which becomes more opportune for themselves or others to attack the inner self of their emerging identity.

*Statement of Problem*

To that end, the teenage years are stigmatized as years of bullying (e.g., physical, social, video, emotional), greater risk-taking behavior, evolving mental health disorders (e.g., Major Depressive Disorder), peer pressure, and decreased physical health maintenance (e.g., sleep, diet, exercise, mindfulness). These more negative concepts of adolescence are paired with greater sense of autonomy, responsibility, and freedoms within this age group. Adolescence may receive a drivers permit and driver’s license, get their first job and earn an income, lead clubs or organizations within school or community systems, volunteer, socialize more frequently with friends, have a romantic relationship, and spend less time in the home.

It is during these years of riding an emotional roller-coaster of highs and lows, complimented by their environment (e.g., home, school, religious setting) and genetic make up (e.g., family history of mental illness) where negative or abnormal patterns of behavior may take root in the adolescent’s daily life at an exacerbated rate.

*Research Question*

Therefore, our research question seeks to understand if reported mental (e.g., suicide ideation, loneliness), social (e.g., bullying) and lifestyle behaviors (e.g., drug and alcohol use) are associated with physical outbursts. Physical outbursts are at the crux of high emotionality and adolescence is the period in human development where it becomes the melting pot of many environmental challenges and individual behaviors are put to the test. The specific research question, is “Are mental, social, or lifestyle behaviors associated with physical outbursts in adolescence?” (examples listed above).

*Data*

The sample dataset in which this research question will be asked with was from the Global School-Based Student Health Survey (GSHS) from Afghanistan, Bangladesh, Bhutan, The Maldives, Nepal, and Sri Lanka. This was a collaborative surveillance project between the selected national governments and the World Health Organization (WHO) to help countries measure and assess the behavioral risk factors and protective factors in the adolescent population aged 13 to 17 years.

*Variables Description*

The table below describes each variable, the question asked, and how the question was measured. All of the following questions were forced choice as a ‘yes’ or ‘no’ question or on a Likert scale.

|  |  |  |
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| **Variable** | **Survey question** | **Recoding** |
| **Exposure Variables** |  |  |
| **Parents understanding** |  |  |
| **Parents understand problems** | During the past 30 days, how often did your parents or guardians understand your problems and worries? | 1, Yes = Most of times/always; 0, No = Never/rarely/sometimes |
| **Parents monitoring** |  |  |
| **Parents were aware of free time activities** | During the past 30 days, how often did your parents or guardians really know what you were doing with your free time? | 1, Yes = Most of times/always; 0, No = Never/rarely/sometimes |
| **Parents check homework** | During the past 30 days, how often did your parents or guardians check to see if your homework was done? | 1, Yes = Most of times/always; 0, No = Never/rarely/sometimes |
| **Parents Control** |  |  |
| **Parents went through things without permission** | During the past 30 days, how often did your parents or guardians go through your things without your approval? | 1, Yes = Most of times/always; 0, No = Never/rarely/sometimes |
| **Other factors** |  |  |
| **Gender** | What is your sex? | 1 = Male, 2 = female |
| **Age** | How old are you? “11 years old or younger to 18 years old or older” | 13 - 15 =1, 16-17=2 |
| **Current cigarette smoking** | During the past 30 days, on how many days did you smoke cigarettes? | 0 = 0 No, 1 or more = 1 Yes |
| **Currently drank alcohol** | During the past 30 days, on the days you drank alcohol, how many drinks did you usually drink per day | 0 = 0 No, 1 or more = 1 Yes |
| **Currently used marijuana** | During the past 30 days, how many times have you used marijuana (also called ganja or weed) | 0 = 0 No, 1 or more = 1 Yes |
| **Ever used amphetamines or methamphetamines** | During your life, how many times have you used amphetamines or methamphetamines? | 0 = 0 No, 1 or more = 1 Yes |
| **Physical Activity** | During the past 7 days, on how many days were you physically active for a total of at least 60 minutes per day? | 0 = 0 No, 1 or more days = 1 Yes |
| **Attended Physical education class** | During this school year, on how many days did you go to physical education (PE) class each week? | 0 = 0 No, 1 or more days = 1 Yes |
| **Spend three or more hours in setting activity** | How much time do you spend during a typical or usual day sitting and watching television, playing computer games, talking with friends, or doing  other sitting activities, such as sewing? | less than 1- 2 hours=0 No, 3 or more hours = 1, Yes |
| **Supportive Friends** | During the past 30 days, how often were most of the students in your school kind and helpful? | 1, Yes = Most of times/always; 0, No = Never/rarely/sometimes |
| **Close friends** | How many close friends do you have? | 0 = 0 No, 1 or more = 1 Yes |
| **Psychological distress** | Defined by considering 3 mental health measures when an adolescent’s response was indicative of distress: feeling lonely “most of the time” or “always”; being so worried about something that could not sleep at night ‘‘most of the time’’ or ‘‘always’’; and making a plan about how to attempt suicide. An adolescent who experienced any one of these above-mentioned criteria were considered as having psychological distress | 0 = No, 1 = Yes |

*Plan of Analysis*

The raw datasets of each country identified above was retrieved the GSHS from the surveillance project with the WHO. The raw datasets were then imported into R for cleaning up. Once the new cleaned up data was complete, a ‘clean\_dataset’ folder was created to identify the six individual countries data. Following the clean datasets of each country, one complete dataset was compiled to reflect the whole sample for analysis.

*Application of Analyses*

The application of analyses will mainly take the form of Pearson's correlation. Once again, the research question takes an exploratory analysis approach to try and identify which behavior (mental, social, or lifestyle) may be associated with greater physical outbursts. The visualizations that will take place following the statistical analyses will be scatterplots. This graph will create a line of best fit and provide an R value to define no, small, medium, or large correlation between the variable being tested along physical outbursts.