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Master of Science in International Health

The prevalence and correlation of health
risk behaviors and school attendance on
being bullied by middle school adolescents
in Libya 2007

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Declaration

This thesis is the result of independent investigation. Where my work is indebted to the work of others, I have made an acknowledgment.

I declare that this study has not already been accepted for any other degree nor is it currently being submitted in candidature for any other degree.

Date and Candidate's Signature

03.08.2020

A handwritten signature in black ink, consisting of several loops and a final flourish, positioned above a horizontal line.

This effort is dedicated to my loving family, friends and particularly to my parents whose support and prayers transform my dreams to reality.

The prevalence and correlation of health risk behaviors and school attendance on being bullied by middle school adolescents in Libya 2007

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Acronyms

AOR	Adjusted Odds Ratio.	55
BPCC	Bullying Prevention Coordinating Committee.	41
CDC	Centers for Disease Control and Prevention.	46
COR	Crude Odds Ratio.	55
EMR	East Mediterranean Region.	38
GSHS	Global School Health Survey.	10
GYTS	Global Youth Tobacco Survey.	38
HBSC	Health Behavior in School aged Children.	35
HIC	High Income Countries.	18
LGBT	Lesbian, Gay, Bisexual or Transgender.	29
LMIC	Low and Middle Income Countries.	10
NCDC	National Centre for Disease Control.	43
OBPP	Olweus Bullying Prevention Program.	19
OIT	Olweus Intervention Programme.	40
REC	Research Ethical Committee.	50
SDG	Sustainable Development Goals.	12
SES	Socio Economic Status.	32
UNAIDS	Joint United Nations Program on HIV/AIDS.	46
UNESCO	United Nation Education, Scientific and Cultural Organization.	46
UNICEF	United Nations Children’s Fund.	46
WHO	World Health Organization.	12
YRBS	Youth Risk Behavior Survey.	39

Executive Summary

School violence and bullying victimization is a common social problem that crosses cultural and socioeconomic boundaries. It affects students of adolescent age worldwide especially in Low and Middle Income Countries(LMIC). Bullying has become a major concern globally, as it may adversely effect the mental well-being and educational progress of students. School bullying can have a negative effect on students in terms of their health risk behaviors, attendance at school and performance. It also has the effect of marginalizing the social integration of students in the school environment. Promotion of School-based bullying interventions appear to be promising but not enough to overcome the practice of peer victimization in schools, which underlies the importance of investigation the predictive factors associated with this phenomenon in countries were not much attention has been made. School bullying remains a public health problem and more efforts are required to identify and examine contextually relevant, social and demographic factors related to bullying.

Studies on the prevalence and associated risk factors of bullying among adolescents are sparse in many middle eastern and north African countries. Hardly anything is known about the epidemiology of bullying in Libya. This research adds insight into this public health issue, therefore there is a need to focus thoroughly on bullying in schools looking more to investigate children's behavior and its consequences on health and school performance and improve the outcome of our generation. The study is particularly concerned with the effect of bullying on health, attitude and school performance of the students. The aim of this current research is to determine the prevalence of bullying victimization according to age, gender and grade of middle school adolescents in Libya. And to explore the effect of bullying on health risk behaviors of the students like physical violence, injuries and smoking cigarettes. Another important measure was looking whether being bullied can be associated with having a student to drop out of school. We also presented a set of proposals to address and reduce this phenomenon in Libyan schools.

The study involved a quantitative cross-sectional analysis from the Libyan Global School Health Survey (GSHS) data 2007. We included students aged 12-15 years in the analysis. First we collected the variables of interest, we then performed a descriptive analysis to describe the demographic characteristics (age, gender and school grade) of the participants. we also measured the prevalence of being

bullied, reporting serious injuries, physically attacked, the use of tobacco and missing school class without permission according to demographic characteristics. Using a P-value of 0.05% to test the significant associations between the independent variables and the outcome variable (bullying). We used Chi square test, odds ratios and an associated 95% confidence interval to identify differences in bullying status with sex, age and grade. We then conducted a univariate and multivariate Logistic regression analysis using crude and adjusted odds ratio to assess the association between all significant factors associated with being bullied. Libya showed a prevalence rate of (35.39%) bullying behavior at least once or twice days among adolescent students. Boys were predominantly involved in peer victimization in schools, they were found to use physical bullying in ways of hitting, kicking and pushing their peers. Although it is generally known that bullying varies by age our findings didn't show any relationship between age and being bullied. Other predictive factors that showed a significant association with a increasing the risk of bullying victimization were physically attacked, experience of serious injury and missing school without permission.

Overall, findings of this study indicated that bullying was a common occurrence in the schools of Libya, as comparing with the international research literature on bullying. Age and grade factors didn't show any significant differences to be in risk of bullying but bullying did show variations between gender which indicates the importance of looking into the factors that influence bullying in both sexes. Other potential factors like physical attacks, and missing school were also associated with bullying. The given findings indicate the burden of this phenomena on health and education. The study also allowed us to explore this problem for further action to be made. There is need to improve bullying measurements and to regularly collect prevalence estimates for the assessment of changing over time. Although research has been conducted on school violence and peer aggression within many different countries, there is a great void in Libyan research regarding youth violence. Bullying is a unique phenomenon with its own function and unique set of risk and protective factors depending on the context of each country. Libya shows that bullying in schools is a major concern. As for ways to confront this phenomenon, it is necessary for the Ministry of Education to address this problem, to implement bullying policies and evidence-based prevention and intervention programs. Moreover multilevel counseling and look at it in a broader level can help eliminate this phenomena. Coordination and cooperation with students, parents teachers and school administration in

the process to overcome bullying victimization is crucial. More important is the future research needed to investigate the prevalence and trends of bullying in Libya, researchers need to implement surveys at regular periods to evaluate the effectiveness of the interventions, and help to inform new policies fighting the practice of this behavior in schools.

Key terms: Bullying victimization, GSHS, Demographic characteristics, Health risk behavior, truancy.

1 Introduction

Health and education should be the rights of every child in the world no matter who they are or where they live. According to the World Health Organization (WHO), "the social determinants of health are the conditions under which people are innate, develop, live, work and age in (WHO, 2020). All these factors encompass economic and social conditions of the country that influence well-being outcomes and live in a better condition to enjoy good health. Countries where armed conflicts are found face serious challenges to protect children from psychological damage caused by the war. Libyan school students continue to be the most affected by the civil war. (UNICEF, 2020a). Providing a stable life to live, learn and grow in could be even challenging in such countries. In 1996 the World Health Assembly professed that violence and injury are global public health problems which should be prevented.(WHO, 2020).

Generally, school bullying is violence that has been recognized as a common social problem affecting students of adolescent age worldwide. It is well known as a public health problem that impacts school children and adolescents' development and learning processes (Silva et al., 2017, Feder, 2007). Prevention programs are needed in order to prevent health hazards and promote health and well-being among school-age children and adolescent. Furthermore addressing this phenomena is crucial to maintain the quality of children's education. In 1987 the UN introduced the priority of ending violence to the Sustainable Development Goals (SDGs). Their target was to end all forms of violence practiced in homes, schools or communities against children throughout their childhood by 2030. In SDG 4, the goal is to ensure a wide range, equitable quality education and promote life time learning opportunities for all people, furthermore SDG 16, that aimed to promote peace and stability in societies(UN, 2020).

Bullying victimization is a health risk behavior that has a harmful impact on the health and learning environment of adolescents. Health-risk behaviors are commonly known as activities that effect negatively on the individuals health, for example, alcohol use, cigarette smoking, fights and severe life-threatening injuries (Guo et al., 2019), these harmful behaviors may cause even more problems such as serious mental health problems, psychiatric diseases, suicide, and criminal offending in the future (Sansone et al., 2013) . Moreover bullying not only affects the health side of the victim but also on the educational side. Victims of bullying often lose their desire to go to school and become less engaged in school than others showing frequent truancy and poor school adjustment (Rigby, 2003).

Adolescents are considered among the most vulnerable members of the society, response to their needs and rights remain concerning particularly in LMIC context (Wilson et al., 2012). In spite of the global public health importance of bullying in schools and the necessity for intervention and prevention programs. Anti bullying interventions and strategies are also a another concern for public health and education. Only one-third of the 133 countries surveyed carried out significant programs to eliminate violence in young people and adults in 2014 (Yang et al., 2017). Since the bulk of bullying research work is originated from western countries and more recently in the countries of sub-Saharan regions, there is still a marked gap in the literature of school violence in the middle east and North African countries.

As this is a global problem which should be tackled in all contextual aspects, more effort and research is needed in those countries. Based on this information, it is vital to examine the occurrence and trends of bullying victimization in all countries, and to explore the health risk factors that have negative impacts on the health level and education of the students is crucial. Overall, the purpose of the present study was to establish the prevalence of bullying victimization and to examine the relationship between bullying victimization and its correlation to personal health risk behaviors as tobacco use, serious self-injury, physical attacks and school attendance in middle school students in Libya.

This chapter will present an outline of school bullying, describing the history of bullying research and its forms. We will also discuss about the adverse effects of bullying particularly on middle school students; additionally, we will look at the global prevalence and variation of bullying across low and middle income countries.

1.1 History of bullying definition

Bullying is a complex phenomenon which results in affecting the lives of hundreds of millions of individuals every year (Volk et al., 2014). Bullying is as one of the forms of violence in our society that involves malicious behavior which is intentionally used to harm the person (Dukes et al., 2009). It can also be defined as repeated aggressive behaviors observed to harm the victim. Thus, bullying includes the systematic harassment (Olweus, 1994), which is intentionally done by the perpetrator to discomfort and hurt the other party. In bullying, the victim is repeatedly and frequently exposed to negative actions (Olweus, 1994). The occurrence of this phenomena has been recorded for decades and is not getting much attention in many countries.

Bullying is practiced mainly in schools, especially in the classroom where a student or a group of students dominate their behavior on others, they may call a victim with different names, hit, or kick the victim. Sometimes bullies exclude the victim socially which make him or her feel lonely and depressed. (Williams and Guerra, 2007). Thus, bullies usually target such individuals who are not similar and are different from themselves like children having different skin color, overweight, tall or short, and even due to religious reasons. They exploit the victim based on those differences. Differences may occur based on power also, bullies usually see themselves stronger, famous and have more relationships with others than the victims which make the victims see themselves as weak in front of the bully.

Bullying has always been a part of life. Research on school bullying made its attention in the late eighties. In 1862 John Flood wrote a story in which the context of this story was about the death of a soldier which was caused by bullying (Scheg, 2015). Since then, there has been a long pause on the research of bullying. Until the late seventies, when the question about bullying started to grow in Scandinavia, it was then recognized in schools as a type of violence practiced in groups between children (Olweus, 2010). Olweus and colleagues started to build a more detailed research on school bullying using different methods of investigating. There was no one definition of bullying at that time, researchers used different terms describing bullying, although these terms were related to each other, each term has a different meaning from the other. Harper suggests that the word bully means "to mock", "to cheat", he defined the bully as "harasser of an individual who is weak". Bullying thus was defined as harassment which means a powerful

person, harass a weak person (Harper, 2013). It was also considered as mobbing. This term was used to describe the specific behavioral pattern that was applied to prey animals. observing and harassing a predator before the attack occurred taking the same picture when a group of children together attack an individual child (Saracho, 2016). Therefore individuals of the mob are described to have similar feelings, thinking, and attitudes. Other researches argue that bullying is considered as a sub type of aggressive behavior (Miller et al., 1989). Aggressors were regarded as a homogeneous behavior group, which neglects the importance of individual group differences.

The Swedish-Norwegian researcher, Dan Olweus, the grandfather of bullying research who acknowledged the value of studying this behavior. Olweus adopted the term bullying confirming that it is better to be use than the term mobbing for many reasons. One strong point in commenting on the word mobbing was that it applied only to violence practiced in groups, and did not involve one-on-one attacks, addition to that, it described this type of violence as a one-time attack incidence. Overall in defining the practice of bullying, the words mob and mobbing, as well as aggressors, are not very useful to be named after this phenomena (Olweus, 2013) whereas describing individuals of the mob to share such a large degree of similarity in feelings, thoughts, and behavior. Even after the term bullying has been defined, there appears to be many perspectives on the way describing being bullied in the literature. However, it is agreed that bullying is the imbalance between the power of the bully and the victim, and it is not considered as bullying if two individuals fight or argue playfully and thus have the same power (Alexander et al., 2004).

The most used global definition of bullying nowadays is Olweus' definition of bullying as "Any student being bullied or victimized when he or she is exposed, repeatedly and over some time to negative actions on the part of one or more other students", this definition requires repeated and intentional negative action to be regarded as bullying, excluding infrequent and less severe adverse acts. In order to be approved being bullied and to be differentiated from other types of violent behavior, three criteria must be followed "(a) An aggressive behavior or intentional "harm doing" (b) which is carried out "repeatedly and over time" (c) in an interpersonal relationship characterized by an imbalance of power" (Allanson et al., 2015).

Over the last two decades much work has been done on bullying (Volk et al., 2014) Bullying has become a major problem in schools because of its detrimental effect

on the student in terms of physical well-being, presence at school and success and community involvement, this has brought attention in many countries (Allanson et al., 2015). Since then the bullying hypothesis has been extended by many scholars from various fields, such as literacy, psychology, sociology and religious (Olweus, 2013). Students can be bullied by different ways which broaden the definition of bullying being direct or indirect bullying. Direct bullying or physical bullying is defined as public attacks that can be witnessed by others against the victim for example by hitting, pushing, and kicking, another type of direct bullying is verbal abuse like (name-calling, provoking, making threats. Indirect bullying is known also as relational bullying this is a hidden abuse behavior, in which an individual or group of individuals tries to manipulate or interfere with relationships (Smith, 2004), it includes gossip spreading or ignoring someone and exclusion in social connections. Recently a new type of bullying called cyber-bullying has been identified. This type of bullying is practiced by school students through social media, it does not differ much from the traditional form of bullying in terms of its side effects. Cyber-bullying is a growing problem as the use of social media has been increased among students (Saracho, 2016). There is a need for a system-level strategy that reduces its practice among children and adolescent (Olweus, 2012).

This study builds on previous work of the Libyan school health survey in 2007. It will be the first research to assess school bullying, and its correlates to harmful behaviors in Libyan schools, aiming to end all violence in schools, striving to end all abuse in schools, raise awareness and catalyze action to eradicate violence and bullying in school.

1.2 Definition of the Terms

The definitions used in this analysis for various forms of bullying are based on the meanings and queries used in the largest global surveys (GSHS).

- **Bully and Victim:** Bully is a person who intentionally harms and hurt a person in a repeated manner. Victim, on the other hand, is exploited and exposed to the negative actions they are the targets of bullying behavior. Victims are those young individuals who are being socially excluded and are less likely to be chosen by their peers (Salmivalli et al., 1996). A victim could be a passive victim and a provocative victim. The characterization

of a passive victim is based on anxious personality along with the physical weakness whereas the characterization of a provocative victim is based on anxious personality as well as aggressive behavior (Salmivalli et al., 1996)

- **Mobbing:** Bullying behavior may occur repeatedly. It could be individual bullying or group to group bullying. When bullying is practiced as a group bullying this is known as Mobbing. Mob (usually large) refers to the group of people who are engaged in harassment (Pikas, 1989). Mobbing is the psychological aggression which includes a group of "mobbers" instead of any single individual (Zapf, 1999). Mobbing is considered as one of the forms of social stressors (Zapf, 1999), as a group of people are involved in bullying.
- **Peer-Abuse:** Bullying may occur at any place. It could be at home, school, or workplace. Bullying, which takes place at school, is considered as "peer abuse". The occurrence of Peer abuse is based on the exploitation that is done among the peers of same age groups. Peer abuse may include not only physical abuse but also emotional abuse of people at a young age which is done by their peers (Olweus, 1995). Peer abuse, as well, can affect the mental health of an individual.
- **Physical bullying:** This involves repetitive abuse such as being struck, injured, kicked, forced, pulled or locked indoors, stolen, damaged or destroyed personal possessions, or compelled to do things. This varies from other types of physical aggression such as physical fights and physical attack.
- **Physical fights:** Group battle arises when two students with about the same strength or power chose to combat one another.
- **Physical attacks:** Described as "whenever one or even more people hit or harm someone, or even when one or more persons threaten another person with a weapon (such as a stick, knife or gun).
- **Peer victimization:** Defined as interactions among children who are the object of other children's aggressive behavior, not siblings and not necessarily friends within the same age.
- **Relational violence:** it also called indirect violence. It is defined as a type of regression that causes harm to someones relationships and social

status. It is often based on explicit prejudice and hatred of someone that is classified by sex, ethnicity, or religion. Examples include spreading rumors, threats and isolating someone from his or her friends.

1.3 Bullying prevalence worldwide

Peer bullying in schools remains a common international problem. Globally, there are significant international and regional variations rates of bullying . For a variety of factors, prevalence rates vary widely across studies, including the use of various testing methods, variations in how bullying is defined, measurements and classification criteria (Menesini and Salmivalli, 2017). Self-report is the most wide-ranging method used to measure the prevalence of bullying rates which could also affect the actual rates of bullying due to cross-cultural differences.

While bullying activity is seen in High Income Countries(HIC) in 9–25 percent of school-age children and adolescents, UK and US research have shown that up to one-third of their school students experience daily bullying as either a victim, bully or bully victim.. The regional survey conducted in 40 Western countries found that students reporting being involved in any of the 3 categories of bullying being a bully,being a victim of bullying and both a bully and a victim ranged from 8.6 to 45.2% among boy and from 4.8 to 35.8% among girls (Craig et al., 2009) on the other hand only a few studies were conducted in low- or middle-income countries (LMIC) with a range of prevalence rates from 12 % to 100% (Fleming and Jacobsen, 2010).

Bullying practice shows a similar pattern across National studies. Victims show consistently higher rates than bullies (Guy et al., 2019) and children in primary school are more likely to be victims or bully-victims than adolescents in secondary school (Finkelhor et al., 2005). On the other hand rates of bullying perpetration reach their height during early adolescence at the ages between 12-15 years (Menesini and Salmivalli, 2017). It has been proposed that this may arise from the propensity of bullies to target younger age groups, and therefore less likely to protect themselves against bullying.

School violence and bullying affect both girls and boys, but gender variations are found based on the form of bullying. Boys are more likely to use direct forms of bullying like physical bullying than girls, because they show more interest in physical battles and physical assaults than girls do. on the other hand, the same

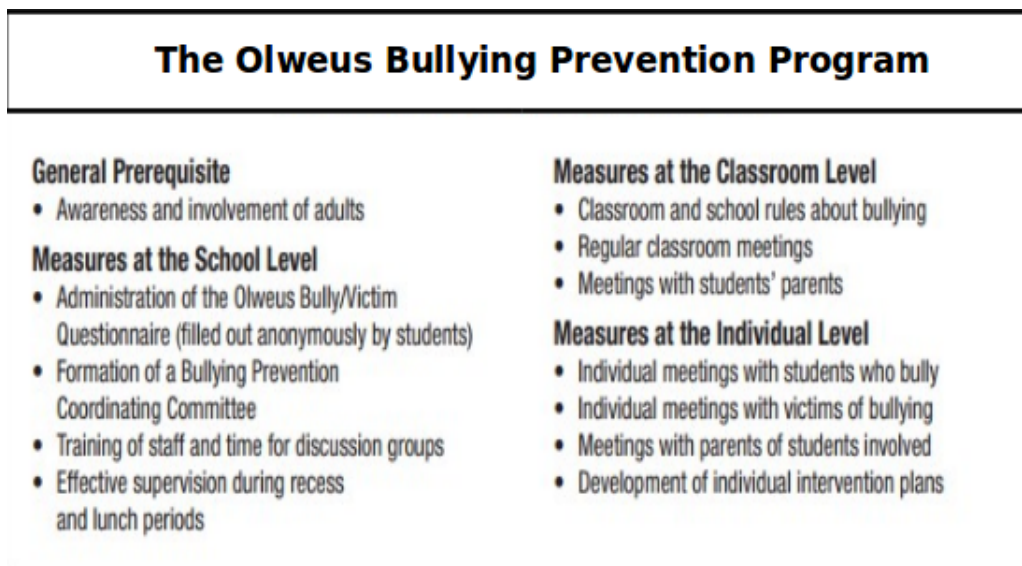
is true for social bullying as girls are more likely to involve in indirect physical aggression such as teasing or gossiping about mates. (Silva et al., 2013, Rech et al., 2020, de Oliveira et al., 2015).

1.4 Olweus Bullying Preventive Programs in schools

In late 1983, following the suicide of three boys ostensibly due to school bullying, a national anti-bullying movement started work on intervention programs. Olweus created the first version of the Olweus Bullying Prevention Program (OBPP), Olweus program is a systematic intervention, which is the most commonly known and effective program for bullying prevention. The key goals of the program were to eliminate current bullying problems among students and avoid the emergence of new bully problems by creating a supportive school environment, and to create stronger peer relationships at school by improving their relationships (Olweus and Limber, 2010a, Limber et al., 2018). He designed the study targeting students in elementary and middle school aged 5 to 15 years old. It was based on the four principles shown in Figure 1. Adults at school should (a) show warmth and interest in their students; (b) set firm limits to unacceptable behavior; (c) use consistent, nonphysical non-hostile negative consequences for violation of rules; and (d) act as authorities and positive role models" (Olweus and Limber, 2010a).

In other words, it used a comprehensive multi-level approach involving many components in the intervention that emphasizes the importance of examining the cultural and social determinants of bullying, at all levels the school, classroom and individual level. In addition to the involvement of the contributed students, teachers, staff and parents in the process. After several evaluations in Norway, researcher reported that this program showed significant reduction reaching to 50% in both bully and victim rates(Limber, 2010). Meanwhile many anti-bullying interventions took place in different countries. Reviews of studies on anti-bullying programs have generally reported many variations in effects on the outcome. A significant large number of schools that had adopted the Olweus Bullying Prevention Program OBPP had proven the sustainability of bullying reduction rates after several years from the implementation of Olweus Bullying Prevention Program OBPP (Olweus et al., 2020).

Figure 1: Resource: "A Profile of Bullying at School" by Dan Olweus, 2003, Educational Leadership, p.51



1.5 Problem statement

The phenomenon of bullying in school, despite its existence for many years in low- and middle-income countries, it is still being under-reported in many countries (Fleming and Jacobsen, 2010). There is a great void in the literature regarding bullying and its potential harm on child's health in North African countries. Countries like Libya need a thorough look at the issue of bullying, it is a huge challenge as it is not a matter of setting laws and penalties, but studying the psychology of children and the behavior that leads to the spread of bullying. Identifying the health consequences and students behavioral changes that have been involved in bullying in early stages is necessary for the implementation of human development and health promotion strategies in the education system. Therefore, more insights are needed on this topic.

Researchers, especially in the North African countries, need to address what variables are correlated to this phenomena. Many studies have been done on the phenomena of bullying, but there is no such work done to consider the insights, particularly in Libya. The National Center for Disease Control in Libya indicates the severity of violence practiced on middle school children noticing that social norms and practices, as well as lack of services addressing school violence, were the cause of this ongoing phenomena (UNICEF, 2020a) So, considering the cultural and political differences across countries, this study will contribute to the

literature with new insights. Similar studies have been done but in a different context. This study was done to investigate the phenomena, particularly in Libya, which ensures the novelty of this study.

1.6 Study Significance

The present study contributes to knowledge in several ways:

1. **Researchers:** it contributes to the literature field of school bullying. Addressing the problem in the Libyan context. As there is a shortage of research involving school violence in Libya, this study will provide valuable information on peer victimization, primarily bullying behavior in middle school adolescents, concentrating on its negative impact on the health level and educational performance.
2. **Policymakers:** This study may attribute in identifying factors and obstacles in the education system which the Government should take into account in order to target efforts at reducing school violence, it may help in the implementation of interventions and educational programs and necessary actions against this phenomena. This study also provides a number of methods of intervention through programs to reduce school bullying, which may also be helpful for the development of interventions and strategies to control student's misbehavior and improve school safety in Libya.
3. **Students advisor and health practitioners:** it would help to create awareness of the problems to all the students, parents, teachers, and all other concerned individuals through counselings and educational programs. This study may prove to be helpful for the health practitioners as they could take necessary actions to prevent the adverse and negative consequences of bullying.

1.7 Hypothesis

The hypothesis of this study was that: bullying victimization is influenced by individual characteristics.

- (A) More boys are identified to be involved in bullying than girls.

(B) Repeated (2 times or more) bullying victimization is associated with health risk behaviors like physical attacks, serious injury and school absenteeism without permission.

Therefore, the following hypothesis was formulated:

- H0: There are no substantial differences between the variables found in the analysis and the variables described in A) and B).
- H1: Statistical differences exist between the variables observed in the analysis and those described in A) and B).

1.8 Research Question

For the research question, the main focus will be on estimating the prevalence of peer victimization, this question was taken from the violence and unintentional injury model and in order to examine the correlates to peer victimization question, questions were taken from the violence and unintentional injury module, protective factors module and tobacco use model. What is the prevalence of bullying, serious injury, physical attack and correlation of health risk behaviors and school attendance on being bullied by middle school children in Libya 2007?

1.8.1 Research Objectives:

The main objective of this school-based cross-sectional study were to establish the occurrence of bullying victimization according to the demographic characteristic and its correlation to personal health risk behaviors and school attendance among adolescents attending school in the State of Libya 2007.

Demographic variables taken for this purpose include sex, gender, and age. The main aim is to determine the correlation of prevalence of bullying according to the sex, age, and grade with the health risk behaviors, i.e. physically attacked status, seriously injured status, smoking status, and missing school status. Research objectives with sub-objectives are as given below:

Main objectives:

To investigate the prevalence of bullying according to different demographic variables.

1. To examine the occurrence of bullying according to the gender
2. To examine the occurrence of bullying according to different age groups
3. To examine the occurrence of bullying according to different grades

Sub-objectives:

To investigate the association of bullying with health risk factors according to different demographic factors

1. To investigate the association of bullying with physically attached status according to gender, different age groups and different grades.
2. To investigate the association of bullying with seriously injured status according to gender, different age groups and different grades.
3. To investigate the association of bullying with smoking status according to gender, different age groups and different grades.
4. To investigate the association of bullying with school missing status according to gender, different age groups and different grades.

2 Literature Review

In order to inform our study we examined exciting literature using articles from pubmed ,googlesolar, Grey literature, newspaper reports and government official documents in our study. We used the following terms when searching for literature on school violence: bullying, violence, school absenteeism, physical attacks, injury, tobacco use and health risk behavior.

We will first give an overview on the nature of bullying on school property, and the types of bullying practiced among adolescents. In the second part we will look at the prevalence of school violence in low and middle income countries, risk factors and consequences of being bullied. Finally we will discuss some successful national response to school violence and bullying in various Countries. In addition, this chapter also consists of a theoretical framework that defines the theoretical basis and conceptual framework for this research.

2.1 Bullying in school

School reflects society and one of the goals of education is to promote society's culture and values. The risk of bad attitudes in school outweighs the child's ability to tolerate this environment, which leaves them with no other choice than leaving school or changing their personal behavior. This phenomenon has been reported to be a global widespread phenomena that has harmed a large numbers of children and teenagers throughout their childhood, children tend to be harassed in different ways and different occasions. Peer bullying is one of the most frequent forms of violence among children and youth in school (Menesini and Salmivalli, 2017) (Elinoff et al., 2004). It's known as victimizing students by their peers on school property, sometimes bullying of younger children by older children, in some cases it can also be carried out by teachers and other school staff in the school too. In particular, the concern about bullying has been increased in the school property. (Alexander et al., 2004). As children and adolescents spend most of their time at school and with peers, any stress factor that can develop in the school environment can have an adverse impact on the children's mental health. Furthermore, the emotional, behavioral and psychological consequences affect students ability to concentrate on academic tasks which have an impact on students academic achievement (Van der Werf, 2014). Thus, Preventive measures should therefore be taken in the school environment to ensure better health and good performance for all students. Bullying and peer victimization in elementary and secondary school are common problems (Craig et al., 2009) (Arseneault et al., 2006). School bullying is getting much attention in the headlines of TV, newspapers and social media as its adverse effects are increasing. About one third of all children will be engaged in bullying behavior either as being a victim, bully, or bully-victim, during their school career. When a stronger students often and over time intimidate students, it results in a psychological effect for the involved students. (Undheim and Sund, 2010).

Several studies has shown that bullying is associated to some kind of genetic relations, because bullying victims tend to be more susceptible to stressful conditions than those who do not engage in bullying (Veldkamp et al., 2019). Peer victimization has been the focus of many researches hundred of years ago, its in all its forms it is seen as a violation of the rights of children and youth to education, safety and well-being. if students experience abuse and bullying at schools there would be no chance of achieving an equal educational quality be-

tween students. School violence needs to be addressed very quickly so that it can be prevented and healthy behaviors promoted in the school environment (Silva et al., 2018). Research shows that bullying is performed twice an hour and usually takes a short time (Atlas and Pepler, 1998), additionally bullying practices done mainly in the classroom after the class has been completed (Chiu, 2013). It is generally known that there is an association between bullying behavior and health. Researchers show the strong associated with being victimized in school and the direct effects on health which may result to social problems and the effect on academic performance regardless of the level of participation as a victim or bully. (Wolke et al., 2013).

Many studies have shown the behavioral changes in schools from aggressiveness to criminalizing other students. An Oman study revealed that many students reported to be are physically attacked or was some who involved in a physical attack from being bullied (Peyton et al., 2017), and demonstrate that this behavior is seriously harmful to students due to the short-term consequences of bullying, such as hyperactivity, difficulties with friendships and the long-term effects of compliance problems such as alcohol consumption and smoky cigarettes. Other symptoms like emotional stress and feeling lonely been shown to be a consequence of bullying victimization (Kubwalo et al., 2013).

Additionally children being bullied show lower grades in school performance as this can interact with the school environment (Strøm et al., 2013), hence it is necessary to recognize children with increasing risk of becoming bullies or bullying victims in their young age by recognizing the determinants and predictors of bullying behavior, this helps to prevent future bullying and victimization. Considering the serious implications for the bully, their targets or victims and the impact of this behavior on the school environment, early adolescence intervention is remarkably essential to minimize these risks, and make sure that all students live and learn in a safe and healthy environment. The whole school environment has an important influence in promoting or inhibiting bullying behavior. Therefore we have to understand how bullying in school is practiced by its different types, its effect on the student and what factors influence bullying behavior.

2.2 Forms of bullying practiced by students

School coexistence is one of the major goals of schools to achievements, ensuring that all participants of this place have a healthy interpersonal interaction with

each other and well-being, will require needs of cooperation and intervention to overcome both challenges in and beyond school time. When looking on who bullying is practiced, we have to identify the behavior as it takes different forms, certain forms of bullying can take place more frequently than others, some which can be practiced anywhere such as in school, in bus and on the way to or from going back home. These different bullying behaviors have also different affects. To understand bullying behavior, all the problems caused by bullying must be addressed. According to the classification of bullying, it could be of two types i.e it could be direct bullying and indirect bullying as referred to in(Allanson et al., 2015) this is the most common classification of bullying used in research. However, other classifications include verbal bullying, physical bullying and social bullying.

The following are the types of bullying identified in the literature

2.2.1 Direct Bullying

Direct bullying which is also known as physical bullying or physical violence it is being exposed and witnessed by the others, it is more apparent such as physical assault or any aggression that is exchanged between the victim and bully(Aluede et al., 2008), it may also include hurting, injuring, and insulting the individuals which could be all be witnessed by anyone. Physical bullying requires any behavior that may physically damage the target as hitting and kicking (Wang et al., 2009). Other forms of direct bullying and using physical violence is through sexual assault. Thus, physical bullying in all its types means any behavior that could or could not physically damage the individual. In comparison, verbal abuse such as (name calling, insulting or intimidating, all the acts and phrases utilized for this type of bullying are readily identified. As the same to direct bullying it may contribute to high degree of behavioral disorders than other forms of bullying (Wolke et al., 2000).

2.2.2 Indirect bullying

Indirect bulling is the most prevalent type of peer bullying (Rigby, 2008) which means to impose strength on others using language like shouting, threatening, and calling names, it may also involve hurting, harming, and humiliating the individuals which could not be easily acknowledged and identified as bullying.

The actions as well as words used by bully could not be easily identified in indirect bullying. Spreading rumors are one example of unintentional teasing specifically related to fear, stress and issues such as removed compartments (Baldry, 2004). Indirect bullying often involves the propagation of disinformation. Relational bullying is one of the types of indirect bullying that will not readily reveal acts and phrases. This behavior could effect the reputation of an individual thus results in damaging the social reputation. Verbal bullying is usually a direct form of bullying. It may include the verbal interaction between the bully and victim. it may also include calling a person with different names, teasing a victim, or taunting them. Teasing is typically performed to hurt the target of verbally that it would harm the victim (Wang et al., 2009). It may also include making offensive remarks by the bully. Thus, The remarks that may harm a individual are also an indication of verbal bullying. Social bullying in another type of bullying. In social abuse, allegations about the target can be circulated in media to jeopardize his or her image. The victim may even feel humiliated by the bully in public. Relational bullying is also another form of indirect bullying based on the social isolation. Actions taken by bullies are usually hidden and are not exposed to others. Behaviors including gossip spreading or ignoring someone and exclusion in social connections. In relation to bullying aggressors damage the social status of the perpetrators and attempt to manipulate or hinder with relationships (Smith, 2004, Björkqvist et al., 1992). Research suggests that relational bullying trends to have fewer behavioral problem relative to others bullying behaviors (Wolke et al., 2000). Bullying behavior is also found differently in different context. For instance, the prevalence of verbal bullying is highest online occurrence, followed by the physical bullying (Williams and Guerra, 2007).

2.2.3 Cyber-bullying

A modern type of bullying has been uncovered, which is linked to utilizing digital technology mainly electronic means among children called cyber-bullying, which does not differ much from the conventional method of bullying, This new type of bullying is getting much popular. Training and communication technology which can be used in cyber bullying include emails, text communications and blogs, online messages and websites etc (Belsey, 2004). Cyber-bullying is mostly common in teenagers and has been increased with the advancement of technology. Example of cyber-bullying is the exchange of sensitive private knowledge sharing the confidential information of the individuals. It could be as harmful as

traditional bullying which must be handled through supervision through parents that decreases their activity between children and adolescents (Olweus, 2012), actually its found that most children who are victims online are also perpetrators of bullying in schools. All forms of bullying behavior are considered violence irrespective of the manner in which it is done, There is always power gap between the bully and the target(Menesini and Salmivalli, 2017). Finally, studies have found that the well-being of the individual is impaired by these styles of aggression.

2.3 Factors influencing bullying behaviors in school

The World Health Organization states that the association between individual and social factors, particularly relationships between families, peers and teachers, contributes to youth violence(Smigelskas, 2018), which implies understanding factors associated with school bullying that may help to understand whether certain children are bullied or bullying others. No one thing may clarify individually why adolescents are offenders, abusers, or abusers. In fact, School bullying in reality stems from dynamic relationships between individual, environmental and social factors, (Chiu, 2013). However, the main two predictors for bullying are the individual and contextual characteristics.

2.3.1 Bully and victim characteristics

children who are in any way considered "different" are frequently bullied. International literature statistics suggest that individuals' appearance or face image is the most prevalent cause of abuse, the second most common are ethnicity, gender and skin color and refugee children from disadvantaged backgrounds like poor families are often vulnerable to negative behavior. Another research carried out in the Netherlands found that students are being bullied mostly because of their body image, personal conduct, education ages, social and religious conflicts, and gender identity (de Oliveira et al., 2015). Furthermore, other beliefs were closely correlated with younger age groups, overweight, lack of social care, psychological and behavioral disorders.

Bullies themselves have often been bullied and often resort to aggression in attempting to fix conflicts (Smokowski and Kopasz, 2005), Some specific characteristics of bullies are aggressiveness, destructive, and like dominating other peers.

Typical bullying behavior is focused on the so-called predominance of attention seekers who want to dominate someone because they are less empathetic and do not care to consider others needs. Another attribute is that you feel comfortable when you see someone in pain and discomfort. However, bullies are more likely to be interested in certain health risk activities such as smoking and drinking alcohol than others (Smokowski and Kopasz, 2005). All these influencing factors may occur as a consequence of certain occurrences in life (such as a new birth, family loss, unexpected injury, or difficulties at home or at school), or other causes, such as socioeconomic disorders and previous victimization. These factors may have serious impact on the individual as poor physical or mental health status, poor academic and achievement (Pervanidou et al., 2019).

Victims are the targets, who can be of any age, class, gender, school or socioeconomic position. Typically, they lack the ability to protect themselves and feel weak after being subjected to violence. They may have low social skills and could therefore quickly become the targets of the bullies. The more victims who have no mates, the more likely they are to be bullied. Typical behaviors of victims may include include low self-confidence, low self-esteem, withdrawal loneliness, and weak social skills. Other studies show that the risk of school violence and abuse is greater for students who are considered non-conformists, including people who are Lesbian, Gay, Bisexual or Transgender (LGBT), than for those who conform to traditional gender-based standards.

2.3.2 Bullying and sex differences

It is widely agreed on that boys are more likely engage in direct bullying and school victimization than girls (Wolke et al., 2000, Berthold and Hoover, 2000, Williams and Guerra, 2007); other studies however record contradictory findings (Wang et al., 2009, Schneider et al., 2011). This could be attributed to differences elements in the definition and measurement of bullying. Different variations were identified by form of bullying. Most studies findings show that boys are more prone to be involved in physical forms of victimization (Wang et al., 2009, Boel-Studt and Renner, 2013), whereas girls prefer to bully either emotionally or verbally. A recent study carried out in Germany revealed that boys have been involved in bullying more frequently than girls, irrespective of their type of bullying and that boys were physically assaulted more often than girls (Scheithauer et al., 2006).

Evidence indicates that females appear to be rationally more aggressive than males whereas males tend to be more physically aggressive compared to females. (Espelage et al., 2003). Another study confirms that relational bullying has been more witnessed and reported among girls (Raskauskas and Stoltz, 2004). When looking at boys bullying, studies from the Middle East, North Africa and the Pacific countries indicate that boys face both high levels of bullying and high levels of peer victimization than girls, which was not the case in Europe and North America where 23 countries reporting boys having lower prevalence rates of bullying than girls (UNESCO, 2019). Olweus (2003) states that according to a number of studies, boys were shown to bully more than girls and that about 50% of girls reported being bullied were mostly bullied by boys, However, Olweus also argues that this does not mean that bullying problems among girls shouldn't be given attention or acknowledged, especially because the bullying used by girls can be equally damaging and is more hidden and might not be all detected by the surveys.

2.3.3 Bullying and Grade differences

School bullying is found in various educational levels . Prevalence of bullying behaviors which may include physical bullying, verbal bullying and indirect bullying may differ based on age, gender, or grades. In general, bullying has been commonly found to be more prevalent in middle schools (Wang et al., 2009). A research undertaken to assess bullying dynamics between grades revealed that students in the seventh grade were more likely to be involved in bullying than students of eight grade (Seals et al., 2003). Furthermore, the analysis of the grade as a measure of cyber bullying found that bullying is more widespread as a consequence of media use in middle school, and more strongly decreased in high schools(Williams and Guerra, 2007). Data reveals that 30 percent of older girls had online bullying and higher grade students have reported more experiences in bullying victimization (Salmon et al., 2018).

2.3.4 Bullying and Age differences

Milsom and Gallo (2006) also noted that bullying takes place primarily in high schools and early teens (Milsom and Gallo, 2006). However, Sampson (2002) argues that elementary schools witness the highest levels of bullying incidents,

followed by middle schools and high schools shows the lowest occurrence (Sampson, 2002). Both agree that bullying is more frequent in younger age children who are in elementary and middle school rather than in high school, it has been proposed that this may arise from the propensity of bullies against younger children and therefore less likely to protect themselves against bullying. According to the Global School-based Student Health Survey (GSHS), a survey of 13,000 student from Egypt, Libya , Morocco and Tunisia showed that school victimization increased with age in Egypt until 16 years old but it did not increase in the other three countries. These findings do not match the results found in other research from around the world which mostly confirms that bullying decreases with age. Some researchers have found that type of victimization tends to vary with age. Younger students more often use physical and verbal forms of bullying, but as they develop they are more prone to be victimized or to bully others rationally (Smith et al., 1999). Other research report that older students experience less physical bullying (Varjas et al., 2009), contradicting, certain studies show that physical bullying declines as a consequence of growing age, whereas verbal violence is elevated with age (Rivers and Smith, 1994). Another research reveals that the age dimension has no connection to physical aggression. (Boel-Studt and Renner, 2013).

2.3.5 Family influences to bullying behavior

Families are the primary source of infant socialization. Parents and families play an active role in the psychology status of their child. Parents and relatives have an important part in their child's developmental status. Parents should promote their children's self-efficiency and self-confidence, which tends to reduce the likelihood of being bullied. Autonomy of children is important to be able to speak out against the bully. Their obligations is to look after their kids, to resolve disputes between siblings and to solve problems that can have an impact on the child's behavior. Furthermore, parents should talk to their children about bullying and stop them bully. Their advice may play a crucial role in helping children successfully react to the bully. Research suggests that the youth violence has a significant association with family status (Holmes and Holmes-Lonergan, 2004). Whilst Bullies' families also use violent actions as a method of contact and interactions between each other, including teasing, sarcasm and blunt words. Children who come from poor performing families are more likely to feel alienation and detached from their parents. With regard to parent's reactions

to bullying, they sometimes do not matter and fail to intervene even though they know their child's violent behavior, because they think this is a normal behavior particularly among boys. Research also indicates that the parents' incompetence in stopping bullies' aggressive behavior will enhance the aggressiveness of bullies. Parental supervision of children who bully others may have a major short and long-term influence on harm prevention (Elsaesser et al., 2017)

The rise of bullying victimization demonstrated optimistic and detrimental unity for parents. Scholars found that bully's parents are oppressive because they use physical discipline and punishment and sometimes a long time deny to their child. Because of this brutality and mistreatment, children lose the kindness and warmth of their family (Smokowski and Kopasz, 2005, Baldry and Farrington, 2000). A massive study of the impact of parental actions on the likelihood of being a bully or a victim from 1970 to 2012 was carried out. They noticed that children who were bullied due to detrimental parenthood had a low to moderate impact (Lereya et al., 2013). In addition the role of parental involvement in four North African countries indicates that parental participation in Egypt, Morocco and Tunisia is correlated with the lower probability of substantial reduction in pair victimization (Abdirahman et al., 2013, Celedonia et al., 2013). In the other side, excessive parental intervention and unnecessary security, which limit the self-efficacy of a infant, also appear to raise the likelihood of infant victimization (Smith and Myron-Wilson, 1998). Family conditions that can influence bullying behavior can include single parents or the family's Socio Economic Status (SES). An inquiry into the association between residing in a single parent home and possessing a weak socioeconomic family position found that both causes are strongly linked to being bullied (Nordhagen et al., 2005). On the other hand, families are often considered a significant protective factor for bullying and victimization, particularly when parents are really dedicated to their families. Studies in Western countries finding that children with high discipline and care as well as moist and emotional support are most likely to protect children and young people from peer victimization (Abdirahman et al., 2013). Mixed results were made in the literature regards to family factors and bullying. Sibling ships tend to be a testing ground with repercussions for individuals well-being. Despite the substantial work on peer aggression or bullying, few studies have explored the connection between sibling and peer aggression. Research assessing the effect of sibling violence has found that the likelihood of sibling bullying rises in the risk for them to bully in school (Menesini et al., 2010). Moreover young students who bully

others recorded destructive and inconsistent sibling relationships. Some studies report that oldest brother siblings may be more dominant in their siblings relationship considering themselves to be more powerful than the youngest. This is supported by a hypothesis of rivalry and jealousy towards younger siblings being dominated by their older brothers (Tippett and Wolke, 2015, Menesini et al., 2010).

2.3.6 School Factors influencing bullying behaviors

Bullying rates in schools are seen to be higher where teachers use authoritarian and strict procedure to cope with misbehavior between students (Smigelskas, 2018). Studies investigating the possible effect of school atmosphere on bullying among students indicating that larger schools predict greater levels of crime and violence (Chen, 2008). Recent studies show that there are discrepancies between classrooms in the prevalence of bullying. These differences can be explained by classroom culture. A study conducted in Australia measuring the perceptions of students on the classroom climate showing that the classroom atmosphere can influence bullying behavior (Yoneyama et al., 2006). Thus an unpleasant school or classroom environment will also pay homage to unpleasant personal behavior. Moreover students' perceptions of their school can also affect their behavior. Social connections between peers have proved to be a significant factor in mental well-being and school success. Social dominance theory is one of the main contributor factors that forces the bully to attack the victim. Social dominance theory is one of the key factors to the bully's assault on the victim. The principle of the Social dominance theory focused on collective superiority. The most influential individuals are likely to target the weakest. According to this theory, societies consist of different social networks and social capabilities. This distinction allows societies of high level to enjoy and control others. People who are of higher social level with high social network, have the power forces and authorization (Sidanius and Pratto, 2011). A research has found that poor social ties with teachers and students have a detrimental impact on the students' mental well-being, while good relationships with peers and teachers reflect positively. (Gustafsson et al., 2010).

2.3.7 Contextual factors influencing bullying

The differences in bullying across countries indicates the different background of bullying in terms of its meanings (Lin et al., 2019). The family's socioeconomic status (SES) is contractible as the association between student socioeconomic history and bullying conduct has been reported with various views. It was previously understood that bullies have an impulsive and aggressive personality, and are often subjected to harsh breeding at home. Socioeconomic predictors of school violence have recently gained substantial exposure. A study was conducted by Olweus on the effect of parents education and socioeconomic status on child's behavior, he found that the living conditions, and the parent's level of income and education were not linked to the aggressiveness of the children, and that bullies and victims are found in all groups of the society (Gredler and Olweus, 1993). In the other side, other research indicate substantial ties between the family's socio-economic status and bullying victimization, and suggest a greater likelihood of bullying in lower socio-economic groups. (Magklara et al., 2012). There is, however, little evidence that students of low socioeconomic status are more interested in bullying behavior. Other contextual factors that are found to be correlated with bullying, such as home conditions, the school and class atmosphere, cultural influences and peer interaction (Pervanidou et al., 2020). The intervention of social reinforcement is special in countries because it shows a significant effect on countries with lowest levels of bullying and conflicts(Smigelskas, 2018).

2.4 Bullying prevalence in low and middle income countries

Research on violence was not widespread until the late 1900's as the extent of violence had not been identified. Dan Olweus started his first bullying research on Norwegian and Swedish schools in the early 1980's with more than 150,000 children aged 8-16. Olweus reported that about nine percent of all students were perpetrators, while about seven percent were actively bullying students, so about one out of seven students are found to be involved in bully or victim issues (Gredler, 2003).

Bullying at every school and everywhere else is unwelcome, offensive behavior affecting millions of students has been recorded irrespective of regional barrier.

Despite growing research into school bullying, the incidence of bullying victimization across countries is widespread. For LMIC, incidence rates vary from 12 to 100 percent (Fleming and Jacobsen, 2010). Scientists sought to classify causes that may explain these regional disparities and found that higher income discrepancies were correlated with more incidents of school bullying in 37 countries (Elgar et al., 2009). Nevertheless, school bullying concepts and attitudes that involve bullying vary across countries. The third largest prevalence of bullying violence in the world is found in the Middle East region. A recent study reported the highest prevalence estimate of bullying found in the Eastern Mediterranean Region with 45.1% (Biswas et al., 2020). Based on the National representative evidence in countries in North Africa and the Middle East, prevalence rates of bullying ranged from 30 % to 60% (Abdirahman et al., 2013). From another international self-report data Health Behavior in School aged Children(HBSC), reports of bullying victimization by regions such as the Middle East were (41.1%), North Africa (42.7%), and sub-Saharan Africa were (48.2%) and they were recorded to be the highest prevalence rates of bullying worldwide (UNESCO, 2020). South African study conducted in urban governmental schools showed an estimate of one third of students being involved in bullying (Liang et al., 2007). Awareness of bullying and associated health problems has risen globally, studies on bullying and its negative effect on health among youth is not visible in many middle east countries. Unintentional injury morbidity and mortality rates are high in the Middle East compared to global trends. According to Oman's recent survey, the annual incidence rate of serious injury in middle school adolescent was showed to be 34.0% (Peyton et al., 2017). Oman's result proved that interpersonal violence had increased serious injuries rates. Another study in Palestine (HBSC) found that the 20% injury rate among students in the sixth grade were due to fighting together (Jildeh et al., 2013).

In sub-Saharan countries the prevalence of bullying victimization higher countries in HI settings. Wilson and colleagues conducted a research in one of the sub Saharan countries. The results of this research differ from many of the bullying research in HI and LI countries. They found that youth absence from school was unrelated to their exposure to bullying, this may be due to the students feeling of safety in the school environment. Another difference they found in their research was that the poverty status was not significantly associated with being bullied this could be due to the support they have from there families (Wilson et al., 2012).

Interpersonal conflict among young people, especially low- and medium-income countries, is becoming ever more concerned as they are experiencing low political and social stability (Krug et al., 2002). More than half of the young people typically record physical hardship in the Middle East and Sub-Saharan Africa (Gofin et al., 2000). However studies in low-income country settings and African settings on the prevalence physical fighting and its correlates among school adolescents is limited. Another research in Ghana showed that 32% of teens in school have been active in physical fights over the last year from the survey time mentioning that it was fewer than in other countries with the same setting. Research in Ghana also found no significant gender associations of being bullied. Another research in Egypt showed that nearly one third 31% of adolescents in school being involved physical fights were also bullied. (Celedonia et al., 2013).

Generally 54% of children and teens experience any form of physical violence at any stage of time, 25% are victims of physical bullying and 30% suffer from emotional bullying (Townsend and Rheingold, 2013). In fact, LMIC reports have shown a greater prevalence rates of victimization in boys rather than girls (Abdirahman et al., 2013, Peyton et al., 2017). Many GSHS participating countries reported the higher risk of smoking cigarette when being bullied than not being involved in bullying. Opposite results were seen in other studies indicating that students being bullied show less risk of smoking than those who were bullied. One of the two most common form of bullying in LMIC, including the victim being hit, kicked or pushed was found in the Pacific and sub-Saharan Africa (UNESCO, 2019).

Research indicates that variations in national policy and program implementation may also play a part in the variability in peer victimization across countries, and the findings also show that in certain countries where national bullying initiatives are developed show comparatively low prevalence, whereas national strategies do not run in countries with the highest rates (Craig et al., 2009). In addition, variations in the incidence of bullying across countries have also been found to be influenced by social and cultural influences (Biswas et al., 2020). This trend is also evident in the same sense in which bullying is recorded to differ within the same contextual settings as shown in Australia's study in 2004 they found that bullying prevalence rates range from 5% to 65% within the region (Jadambaa et al., 2019). Another cause of this variation is the self-report method this is the most commonly employed method for measuring bullying prevalence with no standards applied for the measure.

2.5 Consequences of bullying and outcomes

Bullying can have a significant negative effect on the students quality of life. Bullying with all its forms can lead to numerous adverse outcomes affecting victims mental health which raise the concerns for not only parents but also for health practitioners. Victims of bullying experience negative short and long-term effects.

2.5.1 Health consequences of bullying

School children generally show greater short-term behavioral issues, worse social cognitive effects, worse academic success, higher depression and anxiety, lower mental health issues. Moreover bullies show greater rates in drinking alcohol and drug use, they are also more open to fighting and bringing weapons to school. (Nansel et al., 2004). Bullying during the school period has a detrimental impact not just on social development but also on mental development (Alexander et al., 2004). For several nations, the long-term consequences of bullying involve anti-social growth, sexual relationship violence , unemployment, adult crime. Additionally , youth who are bullied are around twice as depressed and unable to sleep and attempting suicide at night as youth who are not bullied. Evidence shows that bullying is substantially associated with depression and suicide attempts, bullied boys are 2.5 times more likely to think about committing suicide whereas girls who are bullied are more than four times more likely to be think about committing suicide than non bullied girls (Shetgiri, 2013).

The relationships between bullying and health issues in each country are not consistent, bullies for example in countries like Germany, Austria, the UK, the USA, and Denmark appearing to be as safer and healthier as non bullies, unlike China, Greece, or Israel, who reported bullies suffering from very bad health problems and emotional adjustment (Lin et al., 2019). Students involved in bullying at school have consistently reported greater short-long term health problems, worse social and relational performance and worse, poorer school performance, higher stress and anxiety and reduced rates with good mental health (Rigby, 2003)

Emotional and physical issues can not be overlooked or dismissed as a consequence of bullying behavior (Aluede et al., 2008). Bullying has an detrimental impact on the well-being of children and adolescents. It may contribute to increase anxiety and depression. The social growth of adolescents may often be

negatively influenced by abuse, which clinically often contributes to psychiatric trauma (Rigby, 2003). Bullying impacts not only the victim adversely, but also the bully himself. Clinical findings indicate that a contributing factor for negative psychological well-being has its effect on the victim, bully, or both. Peer victimization may contribute to serious problems According to Rigby (2003), there is a strong correlation between the peer victimization and suicidal attempts (Rigby, 2003).

Given the significant hazards involved with bullying at all stages, bullying has a detrimental effect on perpetrators, victims, bully-victims and bystanders. Multiple studies have documented the association between drug use, poor academic achievement, mental health problems and bullying behavior as a matter of concern in adulthood. Longitudinal studies in the UK have found that those who were bullied at school time are more likely to be stressed and their children are more prone of to be violent (Farrington, 1993). Another study from the School Psychology Review pointed out that students who are bully-victims and bullies themselves are the most vulnerable to depression and anxiety than if only they were bullies or victims, they are also at more risk of suicide and having low self-esteem than other bullying students (Seals et al., 2003, Espelage and Swearer, 2003). Unfortunately, bullying can cause serious emotional and mental health problems pushing victims to committing suicidal attempts, victims of bullying are about two to nine times more likely to think about committing suicide.

Besides the obvious health problems of victimization, bullying has also been found to assist in the other negative outcomes that could be as serious to there health and well-being such as smoking, alcohol, drug usage and more prone to fighting and weapon carrying (Nansel et al., 2004). Teenagers in low and middle income countries especially are found with higher rates in using tobacco. Approximately 90% of smokers tend to smoke before they hit the age of 18(Mackay et al., 2006). Tobacco usage during puberty raises the risk of developing certain diseases affecting the respiratory system. Across all countries apart from China a multinational cross-sectional school study was carried out to determine the usage of tobacco by teenagers. Findings found that in the western Pacific region, the incidence for tobacco usage was strongest (17.6%) and lowest in Europe (6.3%) (Xi et al., 2016). Another Global Youth Tobacco SurveyGYTS study was completed between 1999 and 2008 in 23 countries of the WHO East Mediterranean Region(EMR) found more than 50% of young people began smoking in Egypt (2001), Iran and Somalia before the age of 10 (2004) and the prevalence

of smoking among teenage boys in Jordan was continuously high (Usmanova and Mokdad, 2013). Previous studies on the relationship between bullying and smoking have reported disparities in smoking levels between bullies and perpetrators. Fleming and associates recorded at least once smoking cigarettes by 31.6 percent of teenagers in nineteen low- and middle-income countries who were bullied. (Fleming and Jacobsen, 2010, Alexander et al., 2004, Smith-Khuri et al., 2004).

It may seem that adolescent may also smoke due to other factors. Nevertheless, study has found that teen smokers are more prone to engage in physical violence and bullying (Smith-Khuri et al., 2004). There has also been a increasing debate around physical violence and weapon carrying among bullies (Glew et al., 2008a). Physical violence between Egyptian teenagers has been recorded to have ceased to be strong (31%). Studies found that those engaging in physical fights are showing signs of stress, truancy, and to other symptoms that could have affected their school performance. Egypt was politically unstable and the negative atmosphere they lived in could have compelled them to do so. Peer victimization can contribute to serious accidents that end in hospitals (Celedonia et al., 2013). In a cross sectional study carried out among adolescent boys and girls in North American and European countries reported 11% of teen girls and 22% of teen boys carrying gun were evidence of physical fights and weapon carrying were highly related to sever injuries and hospital admission(Pickett et al., 2005). Furthermore, a large scale Youth Risk Behavior Survey(YRBS) showed that older teens are more likely than smaller age groups to carry firearms and experience injuries (Lowry et al., 1998). Overall risk behaviors caused by peer victimization can be daunting.

2.5.2 Effect of bullying on academic performance

Bullying in schools and classrooms can have negative effects on the student's academic achievements. Students who are frequently involved in bullying tend to dislike school, feeling of fear and unsafe being in school. In addition, victim's of school violence and bullying lack the sense of bonding to school as they feel they are reluctant from their classmates, they may also suffer from many psycho social issues making them incapable of focusing on studying, missing class, failing school tasks, and even leaving school, which not only effects the level academic performance but also on future opportunities for employment (Smokowski and Kopasz, 2005). A research in Australia showed that almost a third of stu-

dents who were bullied had trouble focusing in classrooms owing to their fear or were suffering from difficulty in concentrating in classes because of their fear of bullying. Victimized teenagers are more prone to experience low academic performance. A global study has found that adolescents who are frequently bullied are twice as likely to miss school most often or even drop out of school after high school (UNESCO, 2019). Eventually the climate of uncertainty and vulnerability cannot be reconciled with studying in an unsafe living environments, and therefore the academic standard of all students will be harmed. Schools should take more care and use effective measures in addressing and avoiding these problems in classrooms (Navarro et al., 2015)

2.6 Bullying interventions across countries

Bullying is a complex behavior that stems from multiple relationships within a child's and youths social and ecological environment. While bullying continues to be a concern, several experts have identified solutions to minimize bullying in schools through multiple initiatives. Evidence suggests that bullying is more effective when students, teachers, staff and even parents are involved in the bullying prevention programs. "It is essential to understand both the contextual and individual factors that contribute to their persistence", this was the principle of Olweus program (Limber et al., 2018). After the emerge of school bullying and the outcome for bullying perpetrators, several nations started to enact school anti-bullying law measures in school (Ananiadou and Smith, 2002), while other governments initiated intervention plans to cope with bullying in schools and to encourage healthy school environment (Ananiadou and Smith, 2002). Globally, several school-based anti-bullying initiatives have been introduced to eliminate bullying in schools and classrooms. The following parts of this study will explain briefly the key features and efficacy of many regional anti-bullying systems.

1. Olweus Intervention Programme (OIT) on bullying prevention has been shown to be the perfect solution to this problem. The key objective was to enhance the educational atmosphere in such a way that the current bullying dilemma can be minimized, including adults who reflect supportive roles to the youth, the family, the school and the community. It was based on the ecological systems approach involving different entities in bullying intervention (Olweus and Limber, 2010b). The OBPP intervention includes the

- establishment of a Bullying Prevention Coordinating Committee(BPCC) composed of school administrators, parents and community leaders. Intensive staff preparation is often offered and there are daily conversation groups discussing about the problem. The intervention focuses on youth who are identified as victims or bullies and their specific caregiver. Individual specific intervention approach are also designed for students involved in bullying. Evaluations of the Olweus Bullying Prevention Program is focused on the highest bullying impact scales (Gaffney et al., 2019).
2. KiVa Anti-bullying Program is an anti-bullying program that came into existence in Finland in 2007 (Kärnä et al., 2013). The program's activities are aimed at individuals involved in bullying circumstances called the bystanders through educating teachers and other school staff to manage these incidents by classroom meetings and instruction. There were a broad variety of practical tools and events in KiVa, such as dialogue lectures, classroom discussions, short videos about bullying and role plays. They also included curriculum on bullying to be introduced in classes (Kärnä et al., 2011). Eventually, parents enrolled in the KiVa system. Parents provided research on bullying and guidance about how to tackle this issue. Analysis reviewing the KiVa anti-bullying initiative within the first 9 months of the introduction showed that the rates of both victimization and abuse had decreased dramatically within 9 months of action(Kärnä et al., 2011). The KiVa initiative has been shown to be one of the most successful of 53 anti-bullying initiatives worldwide. The findings revealed in Italy that the system is effective in relation to bullying and victimization in primary and secondary schools.
 3. Ecological Anti-bullying Program. Recently researchers have made efforts to reduce the incidence of bullying in the schools using a systemic Approach. The study explored the interruptions between peer community and school setting. It aimed to build a positive and healthy atmosphere in classrooms by raising consciousness of the bullying issue, growing understanding and empowering people to speak out about bullying. The curriculum was based on the 'Bully Proofing Your Class' (BPYS) program which centered on an improvement in awareness and decreasing the incidence of this phenomena (Rahey and Craig, 2002). The curriculum components involved a psycho-educational method, led by students in psychology who obtained

instruction prior to the process. The training classes contained lectures on bullying and victimization. The curriculum also required instructor participation. Staff services provided staff workshops to address the phenomena and direct support to those involved in bullying. The assessment of this analysis shows inconsistent outcomes and optimistic findings in the degree of victimization, peer isolation, and perceptions of school safety for older students of higher grades, who benefited from a school-wide anti-bullying curriculum compared to those who were in lower grades (Rahey and Craig, 2002).

The majority of anti-bullying programs have been tested in countries such as Europe and North America, despite comparatively small bullying prevalence. Regions like Sub-Saharan Africa and the Middle East on the other hand have no anti-bullying programs. In Kenya for example, despite the country having some of the highest rates of bullying within Africa ranging from 63.2–81.8%, regulations that prohibit bullying in schools are not found. (Ndetei et al., 2020). Multiple trials have been conducted to determine the efficacy of country-wide anti-bullying programs across countries (Gaffney et al., 2019, Farrington and Ttofi, 2009, Smith et al., 2004, Chalamandaris and Piette, 2015). School based anti-bullying programs are proven to be successful in decreasing the amount of student bullied and victimization worldwide. A Meta analyses of evaluations of bullying interventions in numerous countries and schools indicates that bullying committed by offenders has been decreased by 20–23% and in bullying victims by around 17–20% from different countries and for different school (Farrington and Ttofi, 2009).

Certain research results in the Norway, Italy, and the USA have found that bullying was lowered by about 21–25%, while bullying victims decreased dramatically by about 21 percent in North America trials while bullying victimization by about 11 percent after interventions were applied (Gaffney et al., 2019). On the other hand, A research assessing the effectiveness of the whole-school programs found that only a limited number of the interventions have seen beneficial impact on victimization and bullying (Smith et al., 2004). Based on the nation background, the effects of such measures may be mixed. Those variations demonstrate that the bullying reduction interventions are not "one-size-fits all," approach. Each Country has its own tools and needs. However, after researching the situation and modifying the programs, transferring best practices and inter-

ventions through cultures is certainly possible after studying the context and adapting the programs accordingly.

2.6.1 Interventions and laws against school violence in Libya

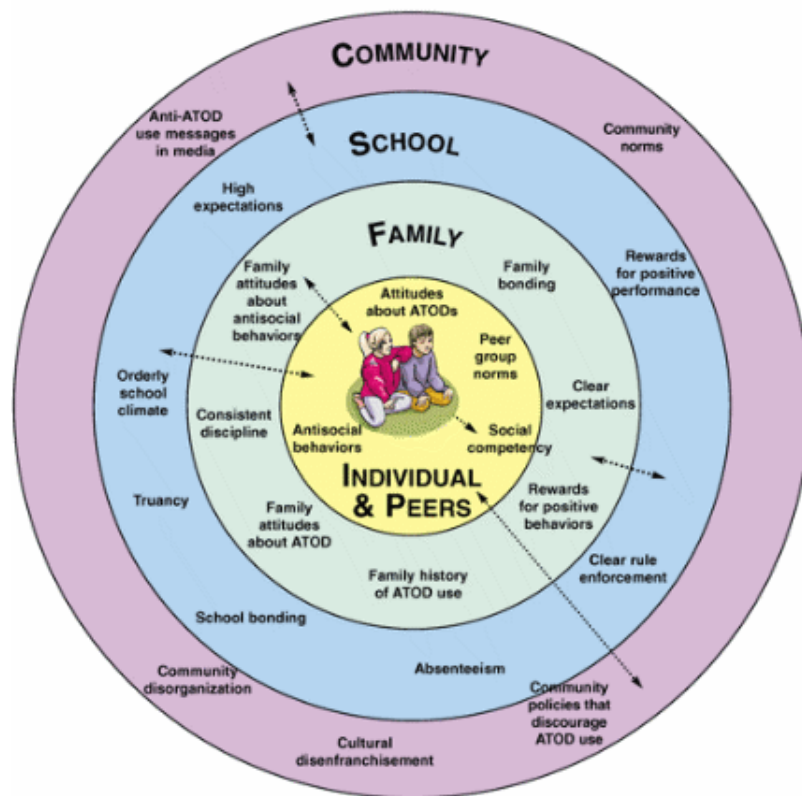
The term bullying is fairly recent to the Arab world, it is defined in many different ways. However studies on bullying is been under-researched in the Arab regions although it has recently received greater attention. Security threats and the breakdown of the laws in Libya have been having an enormous effect on school students especially with the current crisis in Libya (Ali, 2020). Thought a national study Libya observed a high prevalence of bullying in schools(Abdirahman et al., 2013). Latest 2017 research of the National Centre for Disease Control(NCDC) of middle school students of Libya identified 92% of male and 88% of female students who witnessed school or home abuse (UNICEF, 2020b). Bullying continues to attract recognition. The education office in Sirt recently conducted a conference with teachers and education experts on bullying victimization in schools. Another effort was the new campaign launched in Tripoli to reduce bullying in schools it aims to reduce bullying and increase awareness about school violence(Ali, 2020) Although violence is regarded as intolerable and Libya has, luckily, signed and ratified the Convention on the Rights of the Child, there are no specific laws or regulations aimed at prohibit bullying behavior in schools.

2.7 Research framework: The Ecological theory of human development

Based on some previous literature reviews researchers suggests that youths development and well being are influenced by a variety of factors. Risk behavior involving bullying and victimization are ecological phenomena that are reflected from school and class climate, peers, family and community systems. The Ecological theory of human development was developed by Bronfenbrenner (Cross, 2017). The system describes numerous public health issues linked to health risk behaviors(Kelly et al., 2009), and defines the individual behavioral changes due to interpersonal, social, environmental and organizational and organizational influences. The basic principle of the theory is that individual behaviors are influenced by the continuous characteristics in the child's social settings. In this analysis we consider that peer bullying is influenced by individual characteristics

that allow differences between individuals to be distinguished such as age, gender and grade of the youths and This study adopts the concept of Ecological bullying framework that strengthens the empirical link between bullying victimization and personal risk behaviors. The framework comprises five multi system levels see Figure 2. In addition to the lecture, the results in this analysis explain, which will mainly be focused on the microsystem level.during adolescence.the data of this study describes the types of behavior that occur at different levels and the correlation between these levels. In view of the analysis at the micro system level, which examines the direct relationship of an individual. This level is found to be the strongest level that effects the child’s development and behavior examples of this environment are home, school, and community.

Figure 2: Bronfenbrenner’s Ecological Theory of Development *Vera Du Bois (dubois5016) on Pinterest*



Our study is centered at this level were age and gender differences may affect violence interactions between peers during adolescence. In Addition, we will discuss factors at the mesosystem level that examine the patterns of social connections among youth like their parents and teachers know as the protective factors that promote positive development of children and play an important role in reduction

of bullying victimization between peers. We propose and discuss a conceptual model that depicts risk and protective factors that directly increase or decrease the likelihood bullying behavior and the risk factors that potentially strengthen the association between bullying victimization and risk behaviors. In the child has no direct influence on the setting, but it may have a positive or a negative impact on the child's development. Factors on the Macro system level are influenced by the interaction with the society. Finally the chrono system level is the system were the environment were the child grew up in had an impact on his or her behaviors. Thus, this study adopts this frameworks to explore the relationship between individual behavior which arise from the interaction between these levels, whether frequent bullying victimization in adolescent age is influenced by other factors, and to identify which between bullied children having highest risk of being physically attacked and seriously injured than non bullied. We conclude with an examination of potential implications for practice and policy.

2.8 Problem behavior theory

Based on the objectives on this study. We adopted the problem behavior theory. As we discussed individuals behavior can be influenced by other factors. This theory explains the factors that could encourage or protect the individual from these risk behavior. According to this theory bullying victimization is related to environmental, behavioral and personal factors. Since the engagement in one problem increase the likelihood of engaging in other problem behavior. We consider that being involved in bullying increases the risk of aggression behavior as physical violence. Therefore youth who experience peer violence are at increase risk to engage in healthy behavior to cope with this problem.

3 Methodology

The primary purpose of this study was to estimate the prevalence rates of bullying victimization and its correlations to personal health risk behaviors in middle school age students. This chapter explains the steps followed in conducting the study. Starting with a description of chosen methodology and how the key information were approached. Then it elaborates more on the selection criteria of the sampling, followed by detailing how data were collected and analyzed.

3.1 Study design and purpose

This study is a cross-sectional study where data were derived from the 2007 Libya contribution to the GSHS. The GSHS is worldwide observation program created and funded by the World Health Organization (WHO) in a joint effort with the United Nations' United Nations Children's Fund UNICEF, United Nations Education, Scientific and Cultural Organization UNESCO, and Joint United Nations Program on HIV/AIDS UNAIDS and with technical assistance from collaboration with Centers for Disease Control and Prevention (CDC) in USA. Each GSHS customized to be country-specific and is aimed essentially at students aged 13–17 years of age. It includes approved information about the health behaviors and protective factors among adolescent students set in to ten core models including: nutrition, physical activity, hygiene, mental health, alcohol use, tobacco use, drug use, sexual behaviors, violence/injury, and protective factors. Singular countries can select which core modules to add in their survey, furthermore have the choice of including questions from an extended question database. When an individual nation's survey content is chosen, the questions are converted into the local language and pilot tested to ensure student conception. A secondary quantitative data analysis was employed to our study, the advantage of this method is that it provides validity and credibility to the study, its also useful in testing theories (Creswell et al., 2007)

Moreover, data can be quantified and findings can be presented in a reasonable and brief way, advanced research methods can be utilized to test the relations between the measured variables that aides increasing a more extensive picture and permits expansive questions to be investigated. Survey data was chosen for the current study as it helps in giving a numeric description of perception and observing trends of the population overtime (WHO, 2020). Additionally, they are simple to design and quick to implement. Also study data looks more into socioeconomic investigations helping to address each country independently considering the different contextual differences across countries (Pluye and Hong, 2014) which for our study is very critical looking at bullying victimization in Libya's context. GSHS will provide us accurate data on health behaviors and protective factors among students in order to help develop priorities, establish programs, and advocate for resources for school health and youth health programs and policies.

3.2 Sampling strategy

For the sampling strategy a two-stage cluster sample design was used to produce data representative of all students in Grade 7, Grade 8, and Grade 9 in Libya. At the first stage, schools were chosen with from a rundown of all schools in the nations using a strategy that ensures a mix of small and large schools with the consideration of schools from all geographical regions, proportional to population size called the probability proportional to enrollment size, 2700 Schools were eligible to participate in this project, 50 schools were selected to participate in the Libyan GSHS and all of the agreed to take part in the study. In addition one class at from each school was selected for participation. Giving an overall total of 98% students who were enrolled in the studied sample completed the survey questionnaire (WHO, 2020).

At the second stage of sampling, classes were randomly selected within those schools from a list of classes in grades 7, 8 and 9 with the highest proportion of students between 13 and 15 years of age. All students in the selected classes were qualified for participation regardless of what their ages are, so the final study population contains students aged 11 to 17years. The survey was set to protect student privacy by allowing all data to be left anonymous. The answer sheets were designed to be filled by students in an extremely straightforward manner by using pencils to fill in the answers of each question (computer-scan able answer sheet). All necessary arrangement was made with the secretariat of education at all levels and schools contacted by survey administrators for the day and time suitable to select the classes. Students completed the self-report questionnaire during one classroom period (WHO, 2020).

3.3 Study population

The actual sample for the present research was youth (defined as aged 12-16) Males and females, a total of 2,242 student in 50 middle schools of Grade 7, Grade 8, and Grade 9 in Libya were enrolled. Students were asked to complete a self-administered questionnaire which was used to collect data on the health and protective factors of young people related to worldwide leading causes of morbidity and mortality among children and adults. The school response rate was 100%, student response rate was 98%, and the overall response rate was 98%.

3.4 Inclusion criteria and definitions

In this study we included the following:

1. We included the demographic characteristics of the participants age, gender and sex .
2. Adolescent included in our study were aged 12-15 years of age.
3. we considered participants being bullied on one day or more as being bullied.
4. We included data findings from the Libyan report 2007 according to the following question; How were you bullied most often?. As the data set for this question was not publicly available.

In this study we excluded the following:

1. We excluded students aging 11 and younger and students aging 16 years and older. Due to the nature of the data age variable was categorized in to groups. In these two groups the actual age of the students were not given. So we excluded both categorize to measure the mean age of the sample.
2. we excluded any question taken from the questionnaire beyond the scope of the research.
3. Missing students who were absent on the day of the survey as well as adolescents who don't attend school were excluded from the analysis.
4. Missing data from the variables studied were excluded from the analysis.

3.5 Data management and processing

Data was collected for a quantitative design at the school level under the supervision of survey administrators with face to face contact with students. The administration of the whole survey occurred at the time period from 4 - February 2007 to 12- march 2007. Students were asked to complete the self-administered questionnaire which was developed by the secretariat of Health and Environment as well as the Secretariat of of Education and translated in to Arabic language.

A standardized scientific sample selection was used for the process. A common school-based methodology and core questionnaire modules, core-expanded questions, and country-specific questions were selected. The Libya GSHS questionnaire contained 66 questions (35 questions from core questionnaire and 31 questions from core expanded and country - specific questions). Questions were modified to be understandable to students. An overall coverage of 2,242 questionnaires were completed in 50 schools .The total number of questions was 66. The questionnaire was conducted during one classroom period . Students recorded their responses directly on a computer-scannable answer sheet. All scanned data sets were stored electronically at the CDC, in this center data were processed, cleaned, edited and weighted. The questionnaire was signed to enable countries to quantify and identify behavioral risk factors and protective factors in 10 main topics:

- Dietary behaviors
- Hygiene
- Violence and unintentional injury
- Tobacco use
- HIV-related knowledge
- Physical activity
- Protective factor

For our study the variables were captured from the public available data set from 4 main topics 1) Demographic characteristics (age, sex, grade), 2)Violence and unintentional injury (Bullying status, serious injury, physically attacked), 3)Tobacco use and 4)Protective factor (missed classes or school without permission data0. which were imported to STATA MP16 software for statistical analysis. First, we coded the variables of interest (3-independent variables and 5 dependent variables) as shown in table 1. Secondly, we excluded age group 11 and younger and ages 16 and older from the age variable . Missing data were not statistically imputed. Software that takes into consideration the complex sample design was used to compute prevalence estimates and 95% confidence intervals. A weighting factor was applied to each student record to adjust for non-response

and for the varying probabilities of selection. We then used the survey command to declare the data as survey data [svyset psu [pweight=weight], strata(stratum) single unit(centered)].

In our study all dependent variable questions had possible responses containing more than two answers, variables outcomes were set as a binary variable taking yes or no for example students bullied for 2days or more was coded as (yes) when the answer was equal to 0 days coded as (No).

3.6 Missing data

In the demographic variables, participants age question had 34 missing values, gender question had 35 and school grade had 63 missing values which were not considerable compared to our sample size and will not affect the result. Physical attack status also had 25 missing values. In the bullying status variable which is the combination of 7 other question the overall missing vales from this variable was 16. As for the smoking status and missing school also found to have some missing values of 134 and 103 respectively. As missing values could not be nominated by other values we excluded them from the analysis.

3.7 Ethical considerations

Since we used the data from the GSHS 2007, we did not need to get ethical approval from the Research Ethical Committee(REC) in Libya. The research protocol and questionnaires were approved by a national government organization the Secretariat of Health & Environment – Health Information & Documentation Center and translated in to Arabic language and tested before the start of the survey. All necessary arrangement were made with secretariat of education at all levels and schools for the day and time suitable to selected classes. Survey coordinators were specially trained to conduct the procedures, they explained the procedures to children in their classroom, and any child not willing to participate was excluded. Participants have been told that participation in this survey was totally voluntary and they could then accept or reject to participate in the survey. The participants were also advised that the information they were providing were totally confident and will not be shown to anyone else outside of the survey team. Participants are informed that their data are anonymized and publicly available. Participants were also told that they can reject to answer any

specific question if they are not comforted to answer and they could be excused at any point of time.

3.7.1 Measurements

For this study, questions have been identified from the Libyan contribution to the Global School-based Health Survey to inform the aims of this research. Dependent and independent variables extracted from the questionnaires included: sex, age, grade, physical attack, bullying status, serious injury, smoking and missing school without permission. All dependent variables were dichotomized according to the distribution of the data in order to facilitate analysis. The relevant questions for the variables and coding are indicated in Table 1.

Table 1: Dependent and Independent variable derivation from the Libyan GSHS survey data (2007)

Survey question	Coding	Variable
Dependent variable		
How old are you?	12-16 years (coded continuously)	Age
What is your sex	Male (1); Female (0)	Sex
In which grade are you?	1er media or 8vo EGB (0); 2do media or 9no (1); 3ero media or 1ro (2)	Grade
Independent variables		
During the past 12 months, how many times were you physically attacked?	0 times(0) one time or more (1)	Physically attacked
During the past 12 months, what was the major cause of the most serious injury that happened to you?		Cause of injury
During the past 30 days, on how many days were you bullied?	0 days (0), 1or more days(1)	Bullied status
During the past 30 days, on how many days did you smoke cigarettes?	0 days (0), 1or more days (1)	Smoking status
During the past 30 days, on how many days did you miss classes or school without permission?	0 days (0), 1or more days (1)	Missing school

(A) Outcome variable(bullying status): We derived the dependent variable from two survey questions: 1)"During the past 30 days, on how many days were you bullied?" 2) During the past 30 days, how were you bullied most often? we derived the data for this question from the Libyan GSHS report as this question was not publicly available. Bullying was defined to occur when a student or group of students say or do bad and unpleasant things to another student. It is also bullying when a student is teased or left out of things on purpose. It was not considered to be bullied if

two students of about the same strength or power argue or fight or when teasing is done for fun. Participants were asked to answer two questions about their bullying status. These questions are the key items used to make prevalence estimates in the present study. The frequency of bullying is categorized according to the number of days being bullied within the 30 days recall period. The responses to the frequency question were grouped ("0 days", "1 or 2 days", "3-5 days", "5 to 9 days", "10 to 19 days", "20 to 29 days", or "all 30 days"). In our study we set the findings in to two categories to facilitate our analysis using the frequency of one day or more as the cutoff point. These answers were dichotomized to the following: "0 day" never bullied and "1 or more days" as being bullied (we estimated the prevalence rate of being bullied according to the basis of the data set available).

- (B) Physical attacks. Associations of being physically attacked were defined using the survey question "During the past 12 months, how many times were you physically attacked?" defining physical attack occurs when one or more people hit or strike someone, or when one or more people hurt another person with a weapon (such as a stick, knife, or gun). It is not considered as being physical attacked when two students of about the same strength or power choose to fight each other. Response options ranged from "0 times", "1 time", "2 or 3 times", "4 or 5 times", "6 or 7 times", "8 or 9 times", "10 or 11 times" or "12 or more times" For the purpose of our analyses, participants answers were dichotomized to "0 times" when reporting never been attacked and "1 time or more" when been involved in a physical attack within the last 12 months.
- (C) Serious injury. An injury was defined to be serious when it makes the student miss at least one full day of usual activities (such as school, sports, or a job) or requires treatment by a doctor or nurse. By looking at these factors we can estimate the level of peer victimization practiced by adolescents in middle school. The risk of being seriously injured questions used from the survey were 1) "During the past 12 months, how many times were you seriously injured?", and 2) "During the past 12 months, what was the major cause of the most serious injury that happened to you?". The same answer options were for the frequency of being seriously injured were "0 times", "1 time", "2 or 3 times", "4 or 5 times", "6 or 7 times", "8 or 9 times",

- “10 or 11 times”, “12 or more times”. Answers were dichotomized to "0 times" and "1 or more times".
- (D) Missing school or class without permission was defined by the following question : "During the past 30 days, on how many days did you miss class or school without permission?. The students answer options were "0 days", "1 or 2 days", "3 to 5 days", "6 to 9 days", "10 days or more". Answers were also dichotomized to "0 days" and "1 or more days". A student was considered as missing school when he or she reports absence for one or two days.
- (E) Smoking cigarette. Smoking status was examined using the survey question "During the past 30 days, on how many days did you smoke cigarettes?". the answers available were "0 days", "1 or 2 days", "3 to 5 days", "6 to 9 days", "10 to 19 days", "20 to 29 days", "all 30 days". These answers were dichotomized to "0 days" and "1 or more".

3.8 Statistical analysis

A Secondary data analysis was conducted using the GSHS data sets. The aim of this research lies in examining the prevalence of bullying and correlates to health risk behaviors among school-attending adolescents in the State of Libya. To address the problem under study we selected eight variables that are related, important and available under survey. Included variables are gender, age, grade, physically attacked, seriously injured, bullying, smoking and missing classes. All these variables were helpful in analyzing the problem. We first examined the frequency and percentage of study variables and the mean, standard deviation and CI 95% for continuous variables (age). We then examined the distribution of the selected independent variables within the dichotomized dependent variable (Bullying status, physical attack, serious injury, tobacco use and missing school without permission rates by sex, age, grade). These associations were then screened for the statistical significance using Pearson’s chi-square and p value for categorical variables and the t-test for continuous variables (age). We then used all dependent variables as binary variables using Chi square and a p value of 0.005 to find the significant associations between bullying and other predictor factors. An Univariate logistic regression models using crude odds and CI 95% included all variables which were significant at the bivariate level. Sta-

tistical significance for the initial univariate analyses was set at 0.05 while the adjusted analysis was set at 0.01.

We employed univariate and logistic regression to assess the statistical significance of the factors. We considered Crude Odds Ratio (COR) and Adjusted Odds Ratio (AOR) in interpreting univariate and multivariable coefficients respectively. We then applied three multivariate logistic regression models. In the first model we including all the statistically significant variables using the adjusted odds for each factor associated with bullying. In Model 2 we excluded variables found insignificant in model 1. In the third model each variable significant in the bivariate analyses was run in a model (adjusted regression analysis) containing the variables age and gender to control for the potential confounding effects of both. We used a p-value of less than 0.001 to measure the significant associations in the regression model. The data was weighted by using the survey command set for STATA. All data was analyzes using STATA MP, version 16.

4 Results

This chapter comprises of the results of secondary data analysis from GSHS survey questionnaire in Libya 2007. The results are summarized in tables and figures with some clarifications as an overview. Data are presented according to the main study themes. This chapter includes two sections:

1. Descriptive analysis using Chi square tests for associations,
2. logistic regression analysis.

4.1 Descriptive Analysis of the study sample

For the descriptive analysis we describe the sample distribution based on the gender, age group, grade level. We then estimated the prevalence of being bullied, physically attacked, reporting serious injuries, use of tobacco and missing school according to the demographic characteristics of the students using numbers (percentages) for the frequencies estimated for the study variables.

4.1.1 Frequencies and percentages of study variables.

A total of 1894 middle school adolescent participated in Libya School - Based Student Health survey of 2007, Of these 50.87% (n=1102) were females and 49.13% (n=792) were males. It depicts that male percentage was higher than the females but with a slight difference. The table shows that the age group distribution of middle school students were between 12-15 years with around one third (29.42%) of the participants were 13 years old, while 27.78% were 14 years old, followed by 23.51% were 15 years old and the least frequent group were the 12 year old students 19.29%. The mean age of students was found to be 13.56 years and a Standard deviation of 0.062, so values are very less dispersed with a 95% confidence interval range is 13.43 to 13.68. We can also see that there was almost an equal proportion of students from each grade; 34.55% were in grade 8vo EGB(Grade 7), 32.29% in 9no(Grade 8) and 31.16% in 1ro(Grade 9). The demographic characteristics accounting Mean age and sample description of the study sample is given in Table 2.

Table 2: Descriptive Characteristics of the sample (N==1894)

Variable	Number	Percent %
Age Mean (SD)	15.5	0.062 (SD)
Grade		
1er media or 8vo	723	34.55
2do media or 9no	534	34.29
3ero media or 1ro	618	31.16
Sex		
Male	792	49.13
Female	1102	50.87

“Statistical mean gives important information about the data set at hand, and as a single number, can provide a lot of insights into the experiment and nature of the data.” Standard deviation tells the dispersion of data. “95% confidence interval means that 95 out of 100 such intervals will contain true population mean. In other words, 95 out of 100 such samples will contain true mean”.

4.2 Other Predictor variable analysis

4.2.1 Physical attack status

Within the recall period 29.56% of participants reported being physically attacked. But when question asked regarding the frequency of being physical attacked in last 12 months results show a prevalence rate of 15.80% who replied they were attacked 1 time and only 3.94% survey participants were attacked 12 times or more in last 12 months a very small percent of 2% of participants were attacked 4 or 5 times While the majority 79.44% for school adolescent reported they were never been physically attacked in last 12 months. Hence, among the total participants who were attacked most belong to those who were attacked once during the last year.

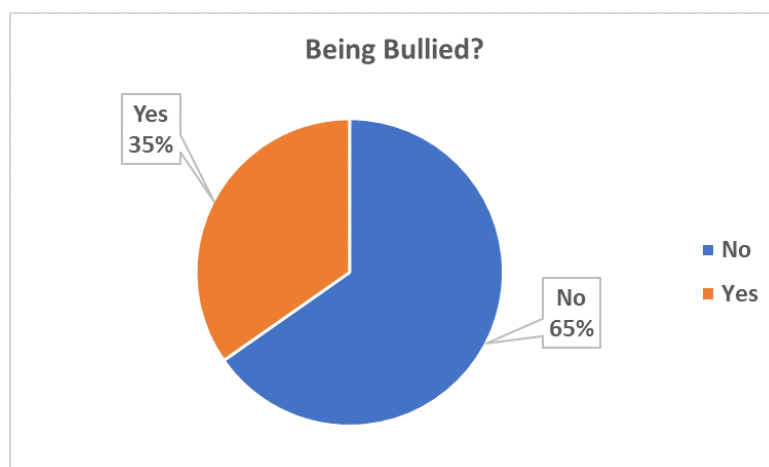
4.2.2 Serious injury status

We found that 59.82% of the students reported not to be injured. On the other hand a huge number of the participants 40.72% reported to be seriously injured in the last 12 months. Further attention was made by asking them about the cause and frequency of the injury. From those being injured 26.43% reported injured for 1 time and 35 participants had serious injury for 12 times or more. Findings indicated that 4.61% students were injured due to falling, 3.22% were seriously injured by fighting with someone, and 7.56% students said the cause of serious injury was something else. Whereas the percentage of students reported to had an injury accidentally either by hurting themselves or by someone else hurting them were 8.47% and 8.22% respectively.

4.2.3 Bullying status and frequency of bullying among Libyan students

Within a 30 day period one third 665 (35.39%) of adolescents reported to be bullied in the previous month to the survey, see Figure 3, the majority of them 202 (21.34%) were bullied for 1 or 2 days, while others 117 (6.34%) were bullied for 3 to 5 days, and 77(4.16%) students reported that they were bullied for all 30 during the 30 days preceding the survey and 1250 (64.61%) reported that they were never bullied. Overall 7.2% of students who were bullied most often being hit, kicked, pushed, shoved around or locked indoors. Male students(10.8%) were more likely to be bullied this way than girls(3.7%).

Figure 3: Bullying prevalence among middle school adolescents



4.2.4 Smoking status and frequency of smoking among Libyan students

From the results findings demonstrated that smoking in middle school is present. 64 (3.90%) of the surveyed adolescent smoked at least for 1 day, and of these 64 students very few 0.64% smoked for all 30 days.

4.2.5 Missing classes or school without permission

Of all school students participated in the survey, 37.18% (n=689) missed classes without permission, while 62.82% missed classes with permission or never missed. Of 689 participants, 513 were missing school for 1 or 2 days, while 38 students missed the classes without permission frequently from 12 days or more in last 12 months.

4.2.6 Association of Dependent Variables with Independent Variables (Age, gender, grade).

In this section we tried to access the association between the dependent and independent variables. We have used t-test and chi-square tests.

“The chi-square test for independence, also called Pearson’s chi-square test or the chi-square test of association, is used to discover if there is a relationship between two categorical variables.” Student’s test or t-test maybe explained as: “The t-test is one type of inferential statistics. It is used to determine whether

there is a statistical significance difference between the means of two groups. With all inferential statistics, we assume the dependent variable fits a normal distribution.”

4.2.7 Association of Bullying Status with Independent Variables (Age, gender, grade)

As we can see from the table below. Chi-square analysis revealed that there was significant difference in bullying status by gender as male students were more bullied compared to female students (19.68% vs. 15.77%, $P=0.003$). Age as a categorical variable shows that the majority of student being bullied were 13 year of age. but still when by looking at the p value there were no statistically significant difference in student’s bullying status by age ($P=0.280$) and by grade ($P=0.146$) when compared with those who were not bullied , both factors show a p value less than 0.005. When age taken as continuous variable, the mean age was higher (13.572) among school students who were bullied than students who were not bullied (13.547) in previous 12 months but the difference (0.025) was not statistically significant ($P=0.695$). We found that bullying victimization is mainly practiced in higher grade level 3er media or 1ro with 12.31% and decreased by lower grades, but there were no statistical significant association between grade and bullying. Bullying is found significantly associated with gender. But there is no significant association between bullying, grade and age. (P-value of 0.005).

Table 3: Bivariate analysis of bullied vs. non-bullied Libyan adolescents (2007)

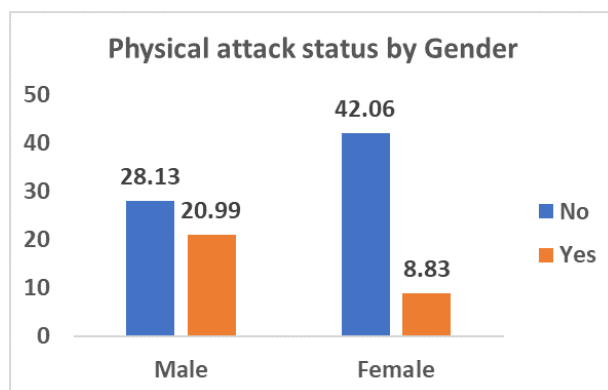
Variable	Bullied (N=665)	Non-bullied (N=1250)	p-value
Mean age (SD)	13.572	13.547	0.695
Grade			
1er media or 8vo EGB	11.4	23.27	0.146
2do media or 9no	11.46	22.52	
3er media or 1ro	12.31	19.04	
Gender			
Male	19.68	29.33	0.03
Female	15.77	35.21	

All figures with the exception of p-values are indicated in percent.

4.2.8 Association of Physically Attacked Status with Independent Variables (Age, gender, grade)

From our analysis the percentage of male adolescent who were involved in a physical attack were more likely to report physical attack compared to female students (20.99% vs. 8.83%, $P < 0.001$) see Figure 4. The mean age of the sample was 13.54 years old and the majority were males(20.99%). We can obviously see that boys are two times higher in experiencing physical attacks by their peers compared to girls. When age taken as a continuous variable, the mean difference was 0.032 among students who were physically attacked(13.577) and who were not attacked (13.545) in previous 12 months. According to the grade level. Students of lower class/grade (1er media or 8vo EGB) experienced more physical attacks compared to higher grades ($P = 0.032$) in the previous 12 months. We can conclude that experiencing physical attacks are significantly associated with gender and grade ,but in insignificant with age.

Figure 4: Association between physical attack status and gender

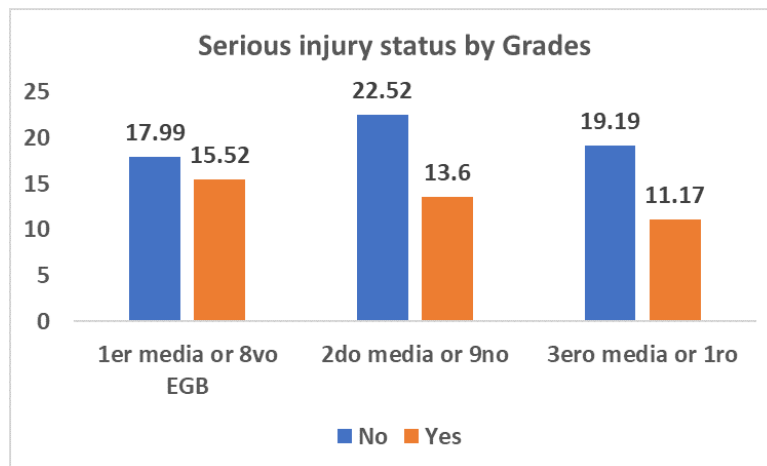


4.2.9 Association of Seriously injured status with independent variables (Age, gender, grade)

Results show 23.98% of male students reported to have any serious injury and 16.63% female students had experienced any injury in last 12 months ($P < 0.001$). Findings show that males have much higher risk of injuries than girls. Findings are described in Figure 5. Another significant difference in the proportion of seriously injured of students was seen by their grades as the majority (15.52%) of 1er media or 8vo EGB grade students reported they have experienced any injury compared to students of other grades. There was no association of serious

injury occurrence with age (categorical) of students ($p=0.283$). When age taken as continuous variable, that mean age was higher (13.546) among school students who were seriously injured than students who were not seriously injured (13.521) in previous 12 months but the difference was also not statistically significant ($P=0.718$). From our findings gender and grade are significantly associated with seriously injured but age is insignificant.

Figure 5: Association between serious injury and grade level



4.2.10 Association of Smoking status with independent variables (Age, gender, grade)

Univariate chi-square analysis revealed that proportion of male students who smoke was higher compare to female students (3.19% vs. 0.71%, $P=0.001$). While smoking status did not vary by age(categorical)($P=0.177$), and grade of students ($P=0.642$). When age taken as continuous variable, students who smoke of higher age (13.755) than students who never smoked (13.540) but the difference (0.215) was not statistically significant ($P=0.116$). So, we can conclude that both age and grade are not significantly associated with smoking. But there is significant association between gender and smoking.

4.2.11 Association of School Missing Status with Independent Variables (Age, gender, grade)

Results demonstrated that school missing without permission was more reported by male students (19.95%) compared to female students (16.91%) ($P=0.003$).

Missing school without permission was higher among lower grade students 1er media or 8vo EGB grade (15.23%) than students of 2do media or 9no grade (10.07%) and 3ero media or 1ro grade (11.66%) ($P=0.001$). When age taken as a continuous variable, findings indicated that mean age was higher (13.605) among students who missed schools than students who did not miss school (13.528) but the difference (0.077) was not statistically significant ($P=0.119$). We can see that gender and grade are significantly associated with missed schools, but here again age in insignificant with missed school.

4.2.12 Associations between Bullying and Other Predictor Factors

Results on the association between bullying with other predictor variables such as physical attack status, seriously injured status, smoking status and missing school status showed a significant association between all the predictor variables as the p-value is less than 0.001. We have used chi-square for testing the association between gender and bullying. It gives us the p-value 0.003 which is significant at 1% level of significance. It means that it is highly significant in addressing bullying. There were 19.63% of male students who reported bullying while 15.77% female students who reported bullying. Chi-square analysis also revealed that there was statistical significant ($P<0.001$) difference in bullying status among student who were physically attacked than those not being bullied. We can also see that there was a significant association of serious injury with bullying status as students who reported a serious injury were also bullied higher (54.95%) than student who not experienced any serious injury in previous 12 months (32.76%). Findings also indicated that proportion of smoker students (smoked for at least 1 day) being bullied was higher (5.89%) compared to students who never smoked in previous 30-days (2.70%). Similarly, bullying was more common among student who missed schools (46.67%) compare to students who didn't miss school (31.95%).

4.3 Regression Analysis

This section discusses the regression analysis. As our dependent variable is binary; bullied or not bullied, we first employed an univariate logistic regression analysis for each predictor independently to test the factors against the outcome variable (bullying) using the Crude odds ratio (COR). After finding associated

factors, multivariate logistic regression was employed to find out adjusted odds and by checked the p-value of each variable in the multiple logistic model to see if there are any associations between the variables. Statistical significance was set to ($p < 0.01$) and 95% of confidence interval has been considered in the regression analysis. "The predictor or independent variable is one with uni-variate model and more than one with multi- variable model. In reality most outcomes have many predictors. Hence multivariable logistic regression mimics reality." To interpret logistic regression coefficients, we use odd ratios.

Crude Odd Ratio and Adjusted Odd Ratio:

Crude Odds ratio (COR) are "obtained when we are considering the effect of only one predictor variable." So, when we are dealing with univariate logistic regression, we use crude odd ratio. Adjusted odd ratios (AOR) is a measure that is used in the multivariate logistic regression analysis that controls for other predictor variables that could act as confounding factor.

4.3.1 Univariate logistic Regression Analysis to Find Factors of Bullying

Table 4 shows the Univariate logistic regression model which was applied to find factors associated with bullying. We chose age as a continuous variable. In the table, we see that the p-value for age shows no significant association with bullying status ($P=0.694$). and the crude odds ratios is (1.02). So age was not found as statistically significant factor of bullying. Gender on the other hand was found to be significant factor for bullying. Results in the table below demonstrate that male students had higher chances (OR; 1.50 CI (1.16-1.93) ($P=0.003$) of bullying exposure compared to female counterparts. There are 50 odds more for boys of being bullied than girls and p-value for gender is 0.003. The associations between bullying and other potential factors were statistically found significant: being physically attacked (OR; 2.33 CI (1.83-2.98) ($P < 0.001$), experience of serious injury (OR; 2.50 CI (1.90-3.39) ($P < 0.001$), positive smoking status (OR; 2.25 CI (1.28-3.96) ($P=0.006$), and school missing (OR; 1.86 CI (1.50-2.32) ($P < 0.001$).

Table 4: Univariate analysis of bullied vs. non-bullied adolescents in Libya (2007)

Variable	Any bullying	
	COR (95%CI)	P-value
Age	1.02 (0.91-1.15)	0.694
Gender (Male)	1.50 (1.16-1.93)	0.003
Physically attacked status (yes)	2.33 (1.83-2.98)	<0.001
Seriously injured status (yes)	2.50 (1.90-3.39)	<0.001
Smoking status (yes)	2.25 (1.28-3.96)	0.006
School missing status (yes)	1.86 (1.50-2.32)	<0.001

COR= Crude Odds Ratio; CI=95%

Results show that all predictor variables (gender, physical attack, serious injury, smoking and missing school) has significant affect on bullying (outcome variable). But age has insignificant affect on bullying.

4.3.2 Multivariate Logistic regression analysis to find factors associated with bullying

After initial univariate analysis, we found that all of the predictors apart from age factor are significantly associated with bullying victimization, we assume that these variables will act as confounders for each other, therefore will included all of the variables to this model to find out the adjusted odds for each factor associated with bullying. Three models were used. First model Model 1 include all significant factors provided by univariate logistic regression. While Model 2 provide only significant factors of multivariable regression. Model 3 used variables that were found insignificant in model 1.

- (A) MODEL 1: When adjusted for Age, gender, physically attacked status, seriously injured status, smoking status, missing school status (Model1 in Table 5), we added age variable again in the models as age variable is an important factor which we can not skip. As we can see from the table below students who were physically attacked had higher chances (OR; 1.74 CI (1.18-2.56) (P=0.007) to be bullied in school, and students who were at-least one time seriously injured were more bullied (OR;1.82 CI (1.39-2.39) (P<0.001). Similarly, regression analysis also revealed that other substantial predictors of bullying school missing without permission (OR;

1.46 CI (1.16-1.86) (P=0.02). Adjusted regression analysis revealed that bullying status did not affect by gender; there was no statistically significant higher or lower odds of bullying among male or female students (P=0.139). Similarly, bullying chances did not significantly vary among smokers or non-smoker students (P=0.575). Multiple Regression Analysis to test the predictors against the Outcome variable and present Adjusted Odds Ratio (AOR) against the outcome variable are shown in Table 5.

Table 5: Multivariate analysis of bullied vs. non-bullied adolescents in Libya (2007)

Variable	Any bullying	
	COR (95%CI)	P-value
Gender(male)	1.24 (0.90-1.69)	0.139
Physically attacked status (yes)	1.74 (1.18-2.56)	0.007
Seriously injured status (yes)	1.82 (1.39-2.39)	<0.001
Smoking status (yes)	1.25 (0.56-2.79)	0.575
School missing status (yes)	1.47 (1.16-1.86)	0.002

aOR= Adjusted odds Ratio; CI = 95%

In model 1 as we can see from the table above gender and smoking status are non-significant while other predictor variables such as physical attacked, seriously injured and school missing status are significant effect on bullying. In regression analysis we always struggle to find out the significant factors. In this search we run multiple regression models that give us the true analysis. Because we may come up with a case where we have supposed several variables attached to dependent variable. We identify only those variables which are significant and important in regression analysis. A regression variable with least significant variables is always a good fit. But keeping in view that an important variable may not skip.

- (B) MODEL 2: excluding variables found insignificant in model 1. We analyzed another model named as Model 2 that uses all the variables found significant from model 1. To have the final regression model we used the drawback method and removed the insignificant variables one by one from our model these variables were age, gender and smoking. We then found that AOR increased for all other significant predictor variables. So, we can

conclude that insignificant variables in Model 1 was affecting the significant variables.

(C) MODEL 3: The Final Multivariate Model From the previous model we have all of the predictors significant except age, gender and smoking status Table 6 shows Model 3 included variable which was found insignificant in model 1. Though we found gender and age insignificant in Model 1 but in this model, we include included them to form another model(Model 3). We did so because we can't neglect the gender variable, as it's important in problem under study. The p-value for gender and age is 0.1 when rounded. The results of the multivariate logistic confirmed the significant association between gender and being bullied. But no association with age was found. When compared to those who did not report being bullied in the past 12 months, those who had been bullied were more likely to be males (OR; 1.28 CI (0.96-1.72) it means that there are 28 odds more males being bullied than female respondents. For physically attacked (OR; 1.75 CI (1.18-2.57) this shows that there are 75 odds more for physical attacked respondents being bullied. There are 86 odds more for being bullied in seriously injured status (OR; 1.86 CI (1.41-2.44). For missed school without permission (OR; 1.46 CI (1.16-1.83) 46 odds are more for the respondents who missed school for being bullied. Using the p-value of 0.001 and a CI-95% found to be statistically significant.

Table 6: Outcomes of multivariable analysis of variables associated with bullying among school-attending adolescents Libya, GSHS 2007

Variable	Any bullying	
	COR (95%CI)	P-value
Gender(male)	1.28 (0.96-1.72)	0.093
Physically attacked status (yes)	1.75 (1.18-2.57)	0.007
Seriously injured status (yes)	1.86 (1.41-2.44)	<0.001
School missing status (yes)	1.46 (1.16-1.83)	0.002

aOR= Adjusted odds Ratio; CI = 95%

5 Discussion

Bullying is a phenomenon that is practiced in schools and is still receiving the attention of researchers, teachers, parents and students worldwide. This large cross-national analysis represents a unique contribution to the study of youth violence among Libyan adolescents. This is the first study in Libya assessing peer bullying and its impact on health and education. We sought to add to the few studies that have been conducted concerning peer violence in the North African and Middle Eastern countries. Our study results will explore the extent of this phenomenon within the Libyan school context among adolescents aged 12-15 years-old, as well as the relationship of being bullied with other risk behaviors that may adversely affect the students health and career, such as being subjected to attacks and injuries, as well as school absenteeism. Our study findings may be useful and timely within the context of recent political changes in Libya, raising awareness on legal protection needs for school students.

This chapter presents a discussion of the key findings of our study using scientific evidence from previous studies on middle school bullying. We conclude the discussion with the strengths and limitations of our study.

5.1 Key Findings and Interpretations

The main finding of the current study was that bullying in Libya is prevalent in middle schools. The result showed that bullying is followed by other aggressive behaviors that may negatively effect the health of the adolescent, such as assaults and injuries. While bullying did not show to have a relationship with tobacco use among middle school students. Possible reasons to be discussed the following sections.

Prevalence of bullying victimization:

Within the recall period, we found bullying behavior is prevalent. About one third 35% of adolescents reported having been bullied in the 30 days period prior to being surveyed. This finding gives rise to concern about the effects of this behavior on youths health. Which could in reality be higher due to several reasons. Using only one measure for assessing bullying in a country may fail to capture the actual number of victims of peer victimization. In addition from our analysis we found that many missing values were seen in the bullying related questions indicating that most students feel reluctant to answer this question.

Thus, it is assumed that bullying rate might be underestimated. There are many reasons why the participants didn't answer the question. In many cultures bullying is seen as a stigma and telling others about being bullied will make adolescents feel ashamed. Thus, it is assumed that bullying rate might be underestimated in our study. However, bullying victimization must be considered as a public health issue (Feder, 2007).

Country-specific prevalence of bullying observed in Libya was found similar to some previous studies from North Africa, Middle East countries and European countries (Berthold and Hoover, 2000, Williams and Guerra, 2007, Wang et al., 2009, Abdirahman et al., 2013, Fleming and Jacobsen, 2010, Peyton et al., 2017). Countries like Egypt have shown higher bullying rates reaching to two times higher (60.3%) than our study estimate (Feder, 2007). This difference was very interesting because Egypt is a neighboring country to Libya. A possible explanation for the lower prevalence of bullying rate in Libya compared to Egypt could be due to that Libya was politically stable at that time compared to Egypt. Another explanation is the higher national economic level in Libya compared to Egypt. Research suggests that wealthier countries with stable socioeconomic settings are more likely to have less outcomes in peer victimization (Nordhagen et al., 2005). Moreover, the variation of bullying prevalence across countries could be due to the variations of cultures, economics and religious factors. Our findings argue about the need for additional work to increase the acceptability of comprehensive school violence preventive programs overcome bullying among students. Protective factors like parents, students and teachers awareness to anti bullying programs has shown a significant positive effect in the reduction of adolescent in many countries (Abdirahman et al., 2013). Whereas these factors were not studied in the Libyan context.

Putting into account that this prevalence rate maybe overestimated as the nature of the data did not lend itself to such an analysis. The categorizations of 1 to 2 days are probably not truly representative of bullying according to Olweus definition. Thus future research should take in to account the repeated and overtime nature of bullying to make an adequate estimation of bullying prevalence.

Regarding the demographic factors associated with bullying in this study are discussed below:

5.1.1 Gender differences

According to the literature the most consistently reported findings on gender bullying shows that boys are more to report history of being victimized by physical bullying than girls (Wolke et al., 2000, Al-Bitar et al., 2013). This common finding was also verified in our study as boys (19.68%) were more likely to be involved in bullying victimization than girls (15.77%). In relation to the way students bully each other, our result is similar to the study conducted among Tunisian GSHS, where students were more likely to be involved in direct physical violence like being hit, kicked, pushed, shoved around, or locked indoors than girls. Previous study suggests that boys are more likely to display physical violence towards others as a form of bullying. Girls on the other hand are more likely to use verbal bullying (Boel-Studt and Renner, 2013, Schneider et al., 2011, Wang et al., 2009). Other countries in Europe and North America found that boys have lower prevalence rates of bullying than girls (UNESCO, 2019). In my view, a reason for why boys bully more could be due to the adolescent internalization of society's beliefs that men are expected to be strong and defend themselves in an overt way. Variation in gender reflects the importance of cultural and social differences. Although there are no major differences between genders but physical violence is shown more clearly among boys.

5.1.2 Age and grade differences

It is generally known that bullying rates tend to decrease with age. Researchers have indicated that typically bullying victimization is found more in younger age and grade groups (Sampson, 2002). As the tendency for bullies to target children who are younger, and therefore less able to defend themselves against bullying. Other studies have reported that bullying increases by age (Peyton et al., 2017). Unexpectedly the age factor in the current study was not significantly associated with bullying behavior ($p=0.695$). But the peak age of being bullied was around 13 years. Which could mean that younger age groups in middle school are at higher risk as seen to be the target group. This variation between countries could be related to the cultural and linguistic differences in the definition of bullying. However, our results were contradictory to the majority of previous studies from other regions in the world. It remains unclear to what extent the victim defined as being bullied, as the concept may differ according to the age group. An explanation could also be that it was a recall bias from younger

age groups as they may not be able to distinguish between the innate behavior of peers and behaviors that infringe on the rights of others. Another factor is that participants may feel shy and afraid to answer a direct question of being bullied making younger adolescent report less. In addition bullying research shows that the association between bullying and social status depends on the age. As adolescents who are engaged to bullying behavior in middle school show high social capital than those who are in elementary school. Further research is needed to address the social relationships between peers in Libya . In my opinion it is for the social health worker to look at the leadership skills of those adolescents and try to change their behavior to overcome this concept among youth.

5.1.3 Physical violence and injuries

Bullying phenomenon does not only effect the victim, as from previous studies bullies themselves are more likely to behave aggressive and commit crimes at an early stage (Nansel et al., 2004). The second goal of our study was to test the theory of problem behavior, investigating whether aggressive behavior influences other risk behaviors. Using the GSHS data questions on unintentional injuries were not comprehensive, the focus was only on the bully-victim and his or her experiences of being attacked and injured. However, in multivariate logistic regression analysis, we found a strong and consistent relationship between being bullied and reporting having a history of bullying and physical attacks. Nearly one third (29.56%) of all school adolescents had been physically attacked. And being a victim of at least one incidence of physical attack was 15.80% in the 12 month period prior to the survey. Similar prevalence's have been recorded in many other countries in the region (Swahn et al., 2013). This indicates that a victim of bullying is of higher risk to face another aggressive behavior. Whereas countries in Europe show lower prevalence rate in school violence. A large national study conducted in UK reported that 15% of the UK children experienced physical violence in school (Cawson et al., 2000). An explanation for these country differences could be that different social and cultural norms influence how individuals react to bullying behavior. Countries in the Eastern Mediterranean share some cultural similarities where they believe that physical violence is a normal method used in resolving conflicts among adolescents.

In virtually all settings where studies of physical attacks have been conducted,

boys were more likely to be involved in physical attacks than girls (Wolke et al., 2000). In line with the research conducted in High and Low income countries, the current study found that boys were predominantly involved in physical attacks in schools, they were two times more likely to report having been physically attacked than girls (20.99% vs 8.83). In general, studies have reported that boys present more unhealthy behaviors than females. However, this finding does not mean that boys are more offensive than girls, but because boys prefer this type of aggression. This could also be explained by the traditional societies view of males to be masculine gender encouraging them to behave aggressively. Furthermore, when looking at the association between grade and exposure to physical violence results posits that students in lower grades were more likely to have experienced physical attacks than in higher grades ($p=0.032$). As an overall trend, the prevalence of physical attacks decreases with age. Nevertheless, this was not observed in our study as the percentage of adolescents did not show any statistical differences (mean difference =0.032). Further research is needed to understand the psychological and social factors that may influence the practice of sever aggressive behavior in Libya.

Moreover research has found that youth reporting fighting were more likely than non fighters to be hospitalized for an injury Further research is needed to understand the individual and social correlates of violence in Libya. Results of the current study confirmed the effects of individual risk factors on interpersonal violence that have been suggested in previous research. A strong graded relationship was observed between bullying during the 30 days preceding the survey and involvement in a physical attacks. students who reported being physically attacked were more likely than other students to report being bullied (40.99%). This supports our Problem behavioral theory perspective that there is an interaction between bullying and aggressiveness. We hypothesize that adolescents who bully are at greater risk for engaging in delinquent behaviors including physical attacks and injuring. Overall, results of the current study considers the multi-level approach of the ecological framework confirming the adolescents behavior is influenced by multiple social context and the interaction between the effects of individual risk factors on interpersonal violence that have been suggested in previous research. A strong relationship was observed between bullying during the 30 days preceding the survey and involvement in a physical attack. Further research is needed to address the school contextual factors that may contribute to risk behaviors.

Three key findings were found in our analysis to being seriously injured. First the 40.72% prevalence rate of serious injuries in our study was unexpected. The result was somewhat higher than the annual prevalence rates reported from most other Middle East GSHS injury analyses (Peyton et al., 2017, Muula et al., 2011). Secondly. When looking at the cause of the injury the majority of the participants reported to be injured due to a fall. Third, the way the students reported to be injured was mainly due to being injured unintentionally either from themselves or from someone else 8.47%, 8.22% respectively and only 3.75% who hurt their peers on purpose. These findings indicate that the risk of injury among adolescents in Libya is mainly due to self harm. We found that boys were more likely to report having sustained serious injury in the past 12 months than girls (23.98% vs 16.63%) this may be due to the limited assessment measures of being injured or due to the nature of boys liking to battle more frequently than females which puts them into a higher risk to be injured than the girls. Our results of the positive association between being bullied and injury risks were inline with previous studies. Research indicates that bullies and victims of bullying are at higher risks for intentional injuries (Peng et al., 2019). A study conducted in Oman (Muula et al., 2011) showed a similar result of the strong association between the variables. The actual relationship between being a bully victim and having the risk of an injury is still not known. Our findings highlight the need for further research to separate samples by sex and fully understand the risk factors of serious injury, and to adjust for other potential and risk confounders that may have had an impact on the association tween bullying and serious injury.

5.1.4 Smoking in relation to bullying

Tobacco use during adolescence causes significant health problems. In this survey questionnaire tobacco is defined as using cigarette on at least one day during the last 30 days before the survey. Using our data, a smoking prevalence rate of 3.90% was found among adolescence in Libya. This finding is similar to a study in Uk (Hopkinson et al., 2014). Our finding is lower compared to many low and middle income countries (Wang et al., 2016). Although the rates of smoking among adolescents in Libya is quite low, buy consideration must be given to the underestimation of this question as it is a personal and sensitive question adolescents may be shy to admit about their smoking behavior. However the presence of even such a percentage in this age raises attention on their causes to smoke.

The commonly and globally observed trend of males smoke more than girls was also found in our study. We found that boys(3.19%) are more likely to smoke than girls (0.71%) . A reason for this gender differences in Libya is that boys can smoke, even if it is not desirable, is still acceptable in the society, unlike girls, where smoking for them is considered a shame. our results did not show any significant differences by age (Mean age, $p=0.116$). The use of tobacco among adolescents in school didn't show any significant association between age and gender. The studies on teenage smoking and its relation to bullying is well documented in the literature. Research in LMIC have shown a significant association between bulling and smoking (Fleming and Jacobsen, 2010) were adolescents who reported to be bullied were more likely to be engaged in other risk behaviors like smoking. This was contradictory to our study as smoking didn't show any associated with being bullied. This finding underlines the importance of considering other causes that influence this behavior like parental and maternal smoking and peer smoking or even other psychological factor. This evidence allows researchers to investigate more on these factors as well as intervention programs are needed at an early stage to combat this bad habit. In conclusion tobacco use although is low compared to many countries but is still questionable especially at this age group. Our findings emphasize the need for tobacco control programs and interventions as well as further research on the factors that influence young adolescent to start smoking..

5.1.5 Missing school without permission

This study showed an estimate of 27.78% participants reporting missing school or class without taking permission for at least one day in the last 30 days prior to the survey. We mainly focused on those who frequently missed school . They were around 38 adolescent missed school for more than ten days without taking permission in the last 30 days. A study revealed that male students are shown to have greater risk of dropping out of school compared to female students. This finding supports our theory indicating that natural hostile behavior of boys influences them to other misbehavior. Moreover from our findings truancy was found significantly associated with being bullied. Our findings are consistent with prior studies that showed risk associations between having been bullied and absenteeism from school among adolescents(Dake et al., 2003, Rigby, 2003). An explanation could be that bully victims lose their strength in their relationships in school, feeling unsafe in the school environment and therefore they lose their

bonding to school (Rigby, 2003). Studies have also shown that school environment is interconnected with mental health and school success (Glew et al., 2008b). As this was a cross sectional study we cannot confirm that missing school was a cause by being bullied or from something else. However, previous literature have shown that students reporting being bullied show to have increase anxiety and loss of friends as a result of being bullied (Hazler et al., 1993) further research of the psychological impact of bullying. From this cross sectional study our findings provides evidence of the need to develop anti bullying school interventions in order for students to have a respectable and safe atmosphere inside school.

6 Strengths and limitations

This study is the first research that studies the phenomenon of bullying and its effect on the health behaviors of school adolescents in Libya. This study contributes important knowledge to the relatively limited literature on peer bullying in North African countries. It is strengthened by the high response rate of schools and participants. The data was collected and analyzed under the supervision of a qualified project team who highly organized it, the process that made the data accurate and reliable Thus, using such data can contribute in implementing strategies to overcome bullying in Libya. In addition, this survey is a nationwide design, representing a large sample size which increases the statistical power of the study. The collection of a large amount of quantitative data makes the results more valid. Furthermore self-report questionnaires tend to be more accurate because the respondents are much closer to the issues and by answering the questions themselves and the information they give will be more accurate. Finally Statistical Methods and applied model (Logistic Regression and Chi-square Test of Association) are quite valid techniques that allows for the inclusion of multiple predictive used in the analysis.

Although we have seen that the present study has its strengths, several limitations must be highlighted which could have also effected our results. The most important limitation to our study that may have effected our results was that the nature of the data on how it was categorized in the bullying question (Participants reporting being bullied on 1 to 2days) was probably not the true representative sample of bullying according to Olweus definition. Thus the rates of bullying that we found in our study may probably be overestimated. Another important limitation was that the data of this survey is based on the students

how were in school the day the survey was carried out, students who were absent on that day or don't go to school, their perceptions and experiences of peer victimization were not captured in the survey. Thus total number of bullying sustained by the study group during the previous year could not be determined. this could have underestimated our bullying prevalence finding. In addition to that, data of bullying were collected without considering the different forms of bullying exposure which made it difficult for us to identify other forms of bullying the rates of their practice to both sexes.

We did not consider potential factors, such as parents, teachers and the psychological factors that may have had an impact on the association between bullying and other risk behaviors. In general by using a cross sectional study the findings on associations do not determine the causality. We cannot therefore confirm that bullying victimization caused physical attacks and injuries. It is also important to pointed out that the data used in this study was not categorized by school location (Urban, Rural), thus examining bullying rates according to different environments was not possible. Another limitation is regards to the bullying questions, were students were only asked if they were bullied or not. Students who were a perpetrator of bullying or bully-victims were not identified. Therefore we could not find out the other aspects of bullying . Further limitation found in Cross sectional Surveys is that they cannot be used to analyze behavior over a period to time. Further, the survey is based on questionnaires via self-reports which will involve only the subjective perception of the participant, for example there may be differences between the participants in their perception of being bullied and how they experienced bullying. Likewise respondents may have miss reported to sensitive questions either intentionally or unintentionally, which usually gives an under reporting estimate of being bullied, being attacked or have been smoking at this age. Finally, using self-report questionnaires might contain unclear questions, which brings the risk of obtaining different interpretations of questions.

7 Conclusions

This study provides valuable information and important relevance on the relationship between bullying victimization, harmful health behaviors and school absence among school adolescents in Libya. The study findings conclude that bullying victimization in Libya is of public health concur that has an impact on

students well-being and school performance. About a third of the middle school adolescents participated in this study have been exposed to bullying. This percentage is alarming for school administrators, Ministry of education and child's protection institutions to take action. Wise steps are needed to reduce its prevalence. Among three demographic variables age and grade tends out not to be significantly associated with bullying. In addition, the fact that victims of bullying were more likely to experience other forms of aggressiveness as physical attacks and serious injuries supports the phrase " violence begets violence" which describes that violence behavior can promote to other violence behaviors, therefore we must understand the root causes of why adolescents evolve into harmful behavior. In our case it is important to overcome bullying since by its definition is a sub type of aggression that leads to other risk behaviors. Findings also indicated that bully victims were in higher risk to be injured. Though a small percentage of students were found to use tobacco, but in this age further investigations on the factors that may influence adolescent to smoke should be addressed and immediate actions should be taken to stop it from spreading. In light of these results, bullying in schools is concerning in Libya especially when there is no clear law or school interventions and programs prohibiting the practice of this phenomena. Therefore, more robust information is needed on how to use policy to prevent youth violence in school by addressing the contextual factors that may have caused it. These findings speak directly to the Ministry of Education on the rights of the student to live and learn in a safe school environment.

Bullying is an issue which cannot be neglected to assure the health and schooling of the children. This issue can't be resolved only through punishments and penalties, but there is also a clear need for intervention programs to address this phenomena. The most important is the need to study the psyche and mindset of the students. This matter needs quite sensible attention from multi sectors. Based on allover findings bullying behavior might pose to threats to students life and career.

In conclusion, major implications of this study signify that further research is needed in the area of school violence. Addressing the nature history and the role of parents, teachers and school is required to understand the affect of different relationships on the individuals behavior. Moreover addressing the psychological and socio-cultural factors that may influence adolescents to bullying victimization will be of no doubt important in implementing anti bullying programs and interventions in Libyan schools.

Recommendations:

The following recommendations are given in light of the findings and conclusions reached in this study :

1. Future research is needed to explore this phenomena , to design bullying prevention and intervention programs more completely. Regular surveys should also be conducted for the evaluation of these programs.
2. For the government, ministries of Health and Education, child's protection institutions to launch awareness campaigns for all ages about bullying behavior, its forms and methods of preventing it.
3. Policymakers have to formulate policies against violence at the school level.
4. school administrators should track the absence of adolescents, in case of repeated absence, reasons for the absence should be verified, if due to bullying, parents are summoned to discuss the problem.
5. Providing a social counselor and a psychologist in every school that identify students having psycho-social problems and treating them in an early stage. Furthermore, reinforcing the importance of communicating with the counselor in case of violence in school.
6. Anti- bullying programs should be established to Teach students on how to develop their social skills, to successfully interact with each other, on self confidence and resilience Train social workers in school on methods of intervention and conflict resolution.
7. Schools must enact strict laws and rules that prohibit any student from harming the other, ensuring that all students are protected from being abused inside classes and schools. Setting punishments to those who do not adhere to the school rules.
8. Strengthening the relationship between peers by social skills training them on how to cooperate with each other, spreading affection by creating groups.

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Thankyou

9 Annexes

Global School-based Student Health Survey (GSHS)

2007 Libya GSHS Questionnaire

For more information:
www.cdc.gov/gshs or
www.who.int/chp/gshs/en/



2007 LIBYA GLOBAL SCHOOL-BASED STUDENT HEALTH SURVEY

This survey is about your health and the things you do that may affect your health. Students like you all over your country are doing this survey. Students in many other countries around the world also are doing this survey. The information you give will be used to develop better health programs for young people like yourself.

DO NOT write your name on this survey or the answer sheet. The answers you give will be kept private. No one will know how you answer. Answer the questions based on what you really know or do. There are no right or wrong answers.

Completing the survey is voluntary. Your grade or mark in this class will not be affected whether or not you answer the questions. If you do not want to answer a question, just leave it blank.

Make sure to read every question. Fill in the circles on your answer sheet that match your answer. Use only the pencil you are given. When you are done, do what the person who is giving you the survey says to do.

Here is an example of how to fill in the circles:

Fill in the circles like this



Not like this



or



Survey

1. Do fish live in water?
 - A. Yes
 - B. No

Answer sheet

1. B C D E F G H

Thank you very much for your help.

1. How old are you?
 - A. 11 years old or younger
 - B. 12 years old
 - C. 13 years old
 - D. 14 years old
 - E. 15 years old
 - F. 16 years old or older

2. What is your sex?
 - A. Male
 - B. Female

3. In what grade are you?
 - A. Grade 7
 - B. Grade 8
 - C. Grade 9

The next 6 questions ask about your height and weight.

4. How tall are you without your shoes on? ON THE ANSWER SHEET, WRITE YOUR HEIGHT IN THE SHADED BOXES AT THE TOP OF THE GRID. THEN FILL IN THE OVAL BELOW EACH NUMBER.

Example

Height (cm)		
1	5	3
0	0	0
	1	1
2	2	2
	3	
	4	4
		5
	6	6
	7	7
	8	8
	9	9
9	I do not know	

5. How much do you weigh without your shoes on?
ON THE ANSWER SHEET, WRITE YOUR WEIGHT IN THE SHADED BOXES AT THE TOP OF THE GRID. THEN FILL IN THE OVAL BELOW EACH NUMBER.

Example

Weight (kg)		
0	5	2
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>
	<input checked="" type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	I do not know	

6. During the past 12 months, have you been weighed and measured?
- A. Yes
B. No
7. How do you describe your weight?
- A. Very underweight
B. Slightly underweight
C. About the right weight
D. Slightly overweight
E. Very overweight

8. Which of the following are you trying to do about your weight?
- A. I am **not trying to do anything** about my weight
B. **Lose** weight
C. **Gain** weight
D. **Stay** the same weight

9. During the past 30 days, did you **exercise** to lose weight or to keep from gaining weight?
- A. Yes
B. No

The next 4 questions ask about going hungry or eating breakfast.

10. During the past 30 days, how often did you go hungry because there was not enough food in your home?
- A. Never
B. Rarely
C. Sometimes
D. Most of the time
E. Always

11. During the past 30 days, how often did you eat breakfast?
- A. Never
B. Rarely
C. Sometimes
D. Most of the time
E. Always

12. During the past 30 days, how often did you eat breakfast at school?
- A. Never
B. Rarely
C. Sometimes
D. Most of the time
E. Always

13. What is the main reason you do not eat breakfast?

- A. I always eat breakfast
- B. I do not have time for breakfast
- C. I cannot eat early in the morning
- D. There is not always food in my home
- E. Some other reason

The next 5 questions ask about foods you might eat.

14. During the past 30 days, how many times per day did you **usually** eat fruit, such as oranges, apples, or bananas?

- A. I did not eat fruit during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

15. During the past 30 days, how many times per day did you **usually** eat vegetables, such as cucumber, green salad, or tomatoes?

- A. I did not eat vegetables during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

16. During the past 30 days, how many times per day did you **usually** drink carbonated soft drinks, such as Pepsi cola, Miranda, shani, or bitter soda?

- A. I did not drink carbonated soft drinks during the past 30 days
- B. Less than 1 time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

17. During the past 7 days, on how many days did you eat at a fast food restaurant serving sandwiches such as shawerma, mafroom, glaya, or hamburger?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

18. During the past 30 days, how many times per day did you **usually** drink milk or eat milk products, such as cheese or butter?

- A. I did not drink milk or eat milk products during the past 30 days
- B. Less than one time per day
- C. 1 time per day
- D. 2 times per day
- E. 3 times per day
- F. 4 times per day
- G. 5 or more times per day

The next 5 questions ask about what you were taught and learned during this school year.

19. During this school year, were you taught in any of your classes the benefits of healthy eating?
- A. Yes
 - B. No
 - C. I do not know
20. During this school year, were you taught in any of your classes the benefits of eating more fruits and vegetables?
- A. Yes
 - B. No
 - C. I do not know
21. During this school year, were you taught in any of your classes the benefits of drinking more milk?
- A. Yes
 - B. No
 - C. I do not know
22. During this school year, were you taught in any of your classes healthy ways to gain weight?
- A. Yes
 - B. No
 - C. I do not know
23. During this school year, were you taught in any of your classes healthy ways to lose weight?
- A. Yes
 - B. No
 - C. I do not know

The next 6 questions ask about personal health activities.

24. During the past 30 days, how many times per day did you **usually** clean or brush your teeth?
- A. I did not clean or brush my teeth during the past 30 days
 - B. 1 time per day
 - C. 2 times per day
 - D. 3 times per day
 - E. 4 or more times per day
25. During the past 30 days, how often did you wash your hands before eating?
- A. Never
 - B. Rarely
 - C. Sometimes
 - D. Most of the time
 - E. Always
26. During the past 30 days, how often did you wash your hands after using the toilet or latrine?
- A. Never
 - B. Rarely
 - C. Sometimes
 - D. Most of the time
 - E. Always
27. Are the toilets or latrines clean at school?
- A. There are no toilets or latrines at school
 - B. Yes
 - C. No

28. During the past 30 days, how often did you use soap when washing your hands?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

29. During this school year, were you taught in any of your classes how to wash your hands?

- A. Yes
- B. No
- C. I do not know

The next 2 questions ask about dental health.

30. During the past 12 months, how often did you have a tooth ache?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

31. When was the last time you saw a dentist for a check-up exam, teeth cleaning, or other dental work?

- A. During the past 12 months
- B. Between 12 and 24 months ago
- C. More than 24 months ago
- D. Never
- E. I do not know

The next 3 questions ask about sources of drinking water.

32. Is there a source of clean water for drinking at school?

- A. Yes
- B. No

33. Do you bring water from home to drink while you are at school?

- A. Yes
- B. No

34. How often do you drink water from the water source at school?

- A. There is not a water source at school
- B. Never
- C. Rarely
- D. Sometimes
- E. Most of the time
- F. Always

The next question asks about physical attacks. A physical attack occurs when one or more people hit or strike someone, or when one or more people hurt another person with a weapon (such as a stick, knife, or gun). It is not a physical attack when two students of about the same strength or power choose to fight each other.

35. During the past 12 months, how many times were you physically attacked?

- A. 0 times
- B. 1 time
- C. 2 or 3 times
- D. 4 or 5 times
- E. 6 or 7 times
- F. 8 or 9 times
- G. 10 or 11 times
- H. 12 or more times

The next question asks about physical fights. A physical fight occurs when two or more students of about the same strength or power choose to fight each other.

36. During the past 12 months, how many times were you in a physical fight?
- A. 0 times
 - B. 1 time
 - C. 2 or 3 times
 - D. 4 or 5 times
 - E. 6 or 7 times
 - F. 8 or 9 times
 - G. 10 or 11 times
 - H. 12 or more times

The next 5 questions ask about the most serious injury that happened to you during the past 12 months. An injury is serious when it makes you miss at least one full day of usual activities (such as school, sports, or a job) or requires treatment by a doctor or nurse.

37. During the past 12 months, how many times were you seriously injured?
- A. 0 times
 - B. 1 time
 - C. 2 or 3 times
 - D. 4 or 5 times
 - E. 6 or 7 times
 - F. 8 or 9 times
 - G. 10 or 11 times
 - H. 12 or more times

38. During the past 12 months, **what were you doing** when the most serious injury happened to you?

- A. I was not seriously injured during the past 12 months
- B. Playing or training for a sport
- C. Walking or running, but not as part of playing or training for a sport
- D. Riding a bicycle, scooter, or riding a horse
- E. Riding or driving in a car or other motor vehicle
- F. Doing any paid or unpaid work, including housework, yard work, or cooking
- G. Nothing
- H. Something else

39. During the past 12 months, **what was the major cause** of the most serious injury that happened to you?

- A. I was not seriously injured during the past 12 months
- B. I was in a motor vehicle accident or hit by a motor vehicle
- C. I fell
- D. Something fell on me or hit me
- E. I was fighting with someone
- F. I was attacked, assaulted, or abused by someone
- G. I was in a fire or too near a flame or something hot
- H. Something else caused my injury

40. During the past 12 months, **how** did the most serious injury happen to you?

- A. I was not seriously injured during the past 12 months
- B. I hurt myself by accident
- C. Someone else hurt me by accident
- D. I hurt myself on purpose
- E. Someone else hurt me on purpose

41. During the past 12 months, **what was** the most serious injury that happened to you?
- A. I was not seriously injured during the past 12 months
 - B. I had a broken bone or a dislocated joint
 - C. I had a cut, puncture, or stab wound
 - D. I had a concussion or other head or neck injury, was knocked out, or could not breathe
 - E. I had a gunshot wound
 - F. I had a bad burn
 - G. I lost all or part of a foot, leg, hand, or arm
 - H. Something else happened to me

The next 2 questions ask about bullying. Bullying occurs when a student or group of students say or do bad and unpleasant things to another student. It is also bullying when a student is teased a lot in an unpleasant way or when a student is left out of things on purpose. It is not bullying when two students of about the same strength or power argue or fight or when teasing is done in a friendly and fun way.

42. During the past 30 days, on how many days were you bullied?
- A. 0 days
 - B. 1 or 2 days
 - C. 3 to 5 days
 - D. 6 to 9 days
 - E. 10 to 19 days
 - F. 20 to 29 days
 - G. All 30 days

43. During the past 30 days, how were you bullied **most often**?

- A. I was not bullied during the past 30 days
- B. I was hit, kicked, pushed, shoved around, or locked indoors
- C. I was made fun of with sexual jokes, comments, or gestures
- D. I was left out of activities on purpose or completely ignored
- E. I was made fun of because of how my body or face looks
- F. I was bullied in some other way

The next 2 questions ask about motor vehicle safety.

44. During the past 30 days, how often did you use a seat belt when riding in a car or other motor vehicle driven by someone else?

- A. I did not ride in a motor vehicle drive by someone else
- B. Never
- C. Rarely
- D. Sometimes
- E. Most of the time
- F. Always

45. During this school year, were you taught in any of your classes how to avoid or prevent motor vehicle accidents?

- A. Yes
- B. No
- C. I do not know

The next 6 questions ask about cigarette and other tobacco use.

46. How old were you when you first tried a cigarette?

- A. I have never smoked cigarettes
- B. 7 years old or younger
- C. 8 or 9 years old
- D. 10 or 11 years old
- E. 12 or 13 years old
- F. 14 or 15 years old
- G. 16 years old or older

47. During the past 30 days, on how many days did you smoke cigarettes?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

48. During the past 30 days, on how many days did you use any other form of tobacco, such as Nargella (water pipe)?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 to 19 days
- F. 20 to 29 days
- G. All 30 days

49. During the past 12 months, have you ever tried to stop smoking cigarettes?

- A. I have never smoked cigarettes
- B. I did not smoke cigarettes during the past 12 months
- C. Yes
- D. No

50. During the past 7 days, on how many days have people smoked in your presence?

- A. 0 days
- B. 1 or 2 days
- C. 3 or 4 days
- D. 5 or 6 days
- E. All 7 days

51. Which of your parents or guardians use any form of tobacco?

- A. Neither
- B. My father or male guardian
- C. My mother or female guardian
- D. Both
- E. I do not know

The next 3 questions ask about HIV infection or AIDS.

52. Have you ever heard of HIV infection or the disease called AIDS?

- A. Yes
- B. No

53. During this school year, were you taught in any of your classes about HIV infection or AIDS?

- A. Yes
- B. No
- C. I do not know

54. During this school year, were you taught in any of your classes how to avoid HIV infection or AIDS?

- A. Yes
- B. No
- C. I do not know

The next 2 questions ask about physical activity. Physical activity is any activity that increases your heart rate and makes you get out of breath some of the time. Physical activity can be done in sports, playing with friends, or walking to school. Some examples of physical activity are running, fast walking, biking, dancing, and football.

ADD UP ALL THE TIME YOU SPEND IN PHYSICAL ACTIVITY EACH DAY. DO **NOT** INCLUDE YOUR PHYSICAL EDUCATION OR GYM CLASS.

55. During the past **7 days**, on how many days were you physically active for a total of at least 60 minutes per day?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

56. During a **typical or usual** week, on how many days are you physically active for a total of at least 60 minutes per day?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

The next 2 questions ask about days in physical activity class each week and learning the benefits of physical activity.

57. During this school year, on how many days did you go to physical activity class each week?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days or more days

58. During this school year, were you taught in any of your classes the benefits of physical activity?

- A. Yes
- B. No
- C. I do not know

The next question asks about the time you spend mostly sitting when you are not in school or doing homework.

59. 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 playing cards?

- A. Less than 1 hour per day
- B. 1 to 2 hours per day
- C. 3 to 4 hours per day
- D. 5 to 6 hours per day
- E. 7 to 8 hours per day
- F. More than 8 hours per day

The next 2 questions ask about going to and coming home from school.

60. During the past 7 days, on how many days did you walk or ride a bicycle to and from school?

- A. 0 days
- B. 1 day
- C. 2 days
- D. 3 days
- E. 4 days
- F. 5 days
- G. 6 days
- H. 7 days

61. During the past 7 days, how long did it **usually** take for you to get to and from school each day?
ADD UP THE TIME YOU SPEND GOING TO AND COMING HOME FROM SCHOOL.

- A. Less than 10 minutes per day
- B. 10 to 19 minutes per day
- C. 20 to 29 minutes per day
- D. 30 to 39 minutes per day
- E. 40 to 49 minutes per day
- F. 50 to 59 minutes per day
- G. 60 or more minutes per day

The next 5 questions ask about your experiences at school and at home.

62. During the past 30 days, on how many days did you miss classes or school without permission?

- A. 0 days
- B. 1 or 2 days
- C. 3 to 5 days
- D. 6 to 9 days
- E. 10 or more days

63. During the past 30 days, how often were most of the students in your school kind and helpful?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

64. During the past 30 days, how often did your parents or guardians check to see if your homework was done?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

65. During the past 30 days, how often did your parents or guardians understand your problems and worries?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

66. During the past 30 days, how often did your parents or guardians **really** know what you were doing with your free time?

- A. Never
- B. Rarely
- C. Sometimes
- D. Most of the time
- E. Always

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