



School of Health, Care and Social Welfare

# MENTAL HEALTH PROBLEMS AND DELINQUENCY

A longitudinal study with six-month follow-up about depressive and anxiety symptoms and delinquent behavior among Italian early adolescents

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## ABSTRACT

Depressive and anxiety symptoms are common mental health problems globally. Antisocial behaviors can occur in early age and develop into delinquency. The aim of the study was to investigate longitudinally, with a six-month follow-up the association between mental health problems (i.e. depressive and anxiety symptoms) and delinquency among Italian early adolescents and if this association differs for boys and girls. A quantitative method was used with secondary data. The sample consisted of 155 Italian 12 years old adolescents. A longitudinal design with two occasions of measurement was used, which allows to follow individuals over time.

The cross-sectional results showed that depressive symptoms were positively associated with delinquency in the total sample. However, no association was showed between anxiety symptoms and delinquency at the baseline. In addition, longitudinal results showed that medium/high delinquent behavior after six-month follow-up can partly be explained by depressive symptoms at baseline, but not by anxiety symptoms in the total sample. The longitudinal results also showed that increased levels of depressive symptoms and anxiety symptoms among boys increased the probability of having medium/high delinquent behavior, but not among girls. In conclusion, mental health problems can to some extent explain delinquency, especially among boys.

**Keywords:** Anxiety, antisocial behavior, delinquency, depression, General Strain Theory, public health.

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# 1 INTRODUCTION

Today, a common public health problem is mental health problems which can have a major impact on individuals health and quality of life. Thus, this makes it difficult to individuals to achieve a good health. World Health Organization (2017) states that two of the most common mental health problems are depression and anxiety that affects the public health all over the world. Furthermore, another prevailing social problem is antisocial behavior. The concept is broad and including several norm-breaking behaviors (Pulkkinen, 2001). Over time, antisocial behaviors can develop into delinquent behaviors (Pulkkinen, 2001). Ingram, Patchin, Huebner, McCluskey and Bynum (2007) claims that delinquency includes all forms of law-breaking acts, such as violence and property crime. The concept also includes crimes committed by minors, e.g. using alcohol or drugs.

According to Sawyer et al. (2012) are adolescents particularly vulnerable because there are many changes, both physically and mentally with the body during this time. In addition, mental health problems often occur during this time for the first time. It is to some extent unclear why mental health problems occur (Sawyer et al., 2012). Previous research has shown an association between various mental health problems and delinquency. For instance, a study by Falk et al. (2014) showed that delinquency in adolescents can derive from mental health issues. Mental health problems and delinquency can affect the public health, and subsequently lead to health inequalities. Since adolescence is a fragile time with many changes that play a significant role in consolidating different behaviors and norms it is considered relevant to study this part of the population.

In the perspective of public health, it is important to investigate mental health problems and delinquency among adolescents. Furthermore, to understand whether adolescents with mental health problems are more or less vulnerable to develop delinquency. In previous research associations have been identified between different mental health problems and development of delinquency. In order to obtain an indication if adolescents with mental health problems are more vulnerable for develop delinquency, it is of interest to examine the association between depressive symptoms, anxiety symptoms and delinquency among adolescents. This can be done in order to develop interventions to improve the mental health and prevent delinquency among adolescents.

The author has a personal interest in the topic of delinquency, partly due to the fact that prevention work with violence has been carried out in the municipality. An example from Vasteras is the project "*a municipality free from violence*" which includes prevention to change adolescents' attitudes and norms to violence. Furthermore, the personal interest in mental health problems has existed for a long time, mainly due to the mental illness of relatives. Therefore, the author is interested in further investigating the relationship between depressive and anxiety symptoms and delinquency among adolescents.

## **2 BACKGROUND**

According to WHO (2017) two of the most common mental health problems are depressive symptoms and anxiety symptoms. Globally, over 300 million people suffer from depression, which is equivalent to 4.4% of the world's population. The number of people affected by various mental disorders continues to increase, especially in low-income countries. Mental health problems affect all people regardless of social class and socioeconomic status, but identified risk factors include unemployment, poverty, traumatic life experiences, alcohol- and drug abuse.

Mental health problems can impact the quality of life. Further, there is an increased risk of committing suicide, which can be one of the consequences of living with mental health problems. According to WHO (2017) around 800,000 people commit suicide annually. For young people aged 15-29, suicide is the second most common cause of death. Today, there are many effective treatments for mental health problems, but in low and middle-income countries, there are few people who receive any care. Estimations showed that 76-85% has not received help for their problems. In addition, it is also common for individuals with mental disorders to be misdiagnosed (WHO, 2017).

Adolescence is an important time for the development of mental health problems. According to Ogden and Amlund Hagen (2019) adolescence includes a period between the ages of 10 and 20, and it can be divided into early adolescence (11-13 years), middle adolescence (14-16 years) and late adolescence (17-19 years). Furthermore, Ogden and Amlund Hagen (2019) claims that during adolescence, extensive parts of the brain develop, including cognitive and emotional functions. However, several biological and psychosocial changes also occur. It is an important period, especially since health behaviors can be maintained in adulthood. Furthermore, depression among adolescents is the most common mental health issue globally, and it can cause many disabilities.

### **2.1 Mental health problems in adolescence**

Mental health problems often occur during adolescence. Ogden and Amlund Hagen (2019) claims that around 50 percent of all mental illness occur at the age of 14, which proves to be a sensitive period in a young person's life. Therefore, early and middle adolescence is a sensitive period to develop mental health issues. In support of that, Sawyer et al. (2012) argue that the years during adolescents are also sensitive due to the biological changes, due to the hormonal changes during puberty. This entails an increased susceptibility to the development of various mental health problems. A current public health issue is mental health problems. Adolescents who live with mental health problems, experiences more problems at school and have a worse health compared to adolescents without mental health problems (Sawyer et al., 2012).

According to the WHO (2020), about 10-20% of all adolescent's experience different forms of mental health problems. A number of risk factors are associated to the development of mental health problems. For instance, (WHO, 2020) states that it is common for adolescents

to strive for more independence and they may experience pressure from friends, which can cause stress. Depending on the living conditions of adolescents, it affects the risk of developing mental health problems. The conditions during the childhood can affect the possibility of education, health care and habits (WHO, 2020). WHO (2013) claims that several factors influence the development of mental health problems. On an individual level, a risk factor is the ability to handle emotions. At social, cultural, economic, and environmental level, risk factors can be bad relationships, low socioeconomic status, poor living conditions and low support from the community. Adolescents who have experienced adversities, difficulties or discrimination are particularly vulnerable to mental health problems. According to Ogden and Amlund Hagen (2019) it is common that mental health problems are not treated or unknown, which means that they often continue into adulthood.

In this study, mental health problems include depressive and anxiety symptoms. In the following paragraphs, the concepts will be defined. In a global perspective, females report problems from depression and anxiety to a higher extent than males. Living with mental health problems can affect the health negatively, as well as the feelings of the life as meaningless may occur.

### **2.1.1 Depressive symptoms**

Depression is a global public health issue, affecting individuals around the world. According to WHO (2017), depression affects people of all ages and 322 million individuals suffer from depression worldwide. Furthermore, women suffer from depression to a greater extent than men, and it can constitute a disability for the individual. Consequently, work, school and social relationships are often neglected (WHO, 2017). The time as a youth is particularly sensitive and therefore the development of depressive symptoms can occur during this time. According to Patel et al. (2007) depression is a complex issue among adolescents, and it is a global challenge for the public health in all societies.

According to Thapar et al. (2012), there is an increased risk for developing depression during puberty, especially among girls. Estimates have shown that about 24 percent of adolescents in general get the diagnosis of depression before reaching the age of 18. WHO (2017) states that quality of life can be seriously affected by depression when it is not treated or detected. In addition, Thapar et al. (2012) points out, depressive symptoms affect the psychosocial environment negatively, e.g. impaired relationships with family and friends, and it effects education with poorer results. This is also confirmed by Guberman and Manassis (2011) who claims that social functions such as relationships with friendships and families are affected negatively among adolescents with depression.

Depressive symptoms can, according to WHO (2017), be loss of energy and diminished interest for participation in activities that previously was perceived as entertainer. The symptoms last for at least two weeks and can lead to insomnia, poor self-confidence, concentration difficulties and anxiety symptoms. Furthermore, Roberts (2015) claims that depression is one of the most common psychological diagnoses which adolescents contact health care and needs psychological help and treatment. Common symptoms among depressed adolescents is problems with feelings, difficulty of dealing with problems, making

decisions and a negative self-perception. Adolescents with depressive symptoms can isolate themselves, which results in fewer social relationships and less social contact with friends (Roberts, 2015). According to (WHO, 2017) is depression diagnosed on a scale from mild, moderate to severe depression.

In Italy in 2017, the prevalence of depressive disorder for the total population was 3.46 percent, which corresponds to 2.39 million people of the population, and more women (4.39%) than men (2.49%) suffer from depressive disorders (Our world in data, 2020a). Depressive disorders in Italy are most common among individuals in age over 70 years. In the age group of 15-49, 3.9% of the population suffer from depressive disorders (Our world in data, 2020b). According to de Girolamo, Alonso and Vilagut (2006) there is no specific prevalence number for adolescents available. Therefore, the prevalence of depressive symptoms regarding early adolescents in Italy is to some extent unknown.

### **2.1.2 Anxiety symptoms**

Another common mental health problem is anxiety, which affects peoples of all ages. Anxiety symptoms can be experienced in different forms. According to WHO (2017) approximately 264 million people globally are estimated to suffer from anxiety. Furthermore, Monga (2018) claims that the prevalence of anxiety for children and adolescents varies between 10-20%. According to WHO (2020), it is common to experience emotional disorders when experiences anxiety. Anxiety often occur among early adolescents and involves feelings such as aggression and frustration which can result in mood swings.

Anxiety can occur both mentally and physically, e.g. common physical anxiety symptoms are increased heart rate and sweating. Psychological symptoms can be feelings of fear, anxiety, and dizziness (American Psychological Association, 2020). Furthermore, WHO (2017) argue that a common state of anxiety are panic disorders, which can be expressed as repeated panic attacks, phobias for a situation, an object, or an activity. Social anxiety can produce extreme emotions of fear that are derived from social situations and fears to be judged by others. Post-traumatic stress disorder is derived from a traumatic experience that causes anxiety (WHO, 2017).

In year 2017, 5.63 % of the Italian population suffered from anxiety disorders, most of them were women 7,38 % and 3,81% were men (Our world in data, 2020c). Anxiety disorder was most common in the age group of 15-19 years (7,43%), followed by the age group of 10-14 years (7,11%) (Our world in data, 2020d). However, according to Graczyk and Connolly (2015) around 4-19% of adolescents suffer from various anxiety disorders. In addition, it is common with several other mental disorders such as depression. It is also common for adolescents who have anxiety disorders at a young age to continue to have mental health problems in adulthood (Graczyk & Connolly, 2015).



## 2.2 Antisocial behavior and Delinquency

In the present study the outcome of interest is delinquency, in early adolescence antisocial behavior is more common. Antisocial behavior is a broad concept that has several similarities with delinquency. The target group are early adolescents; hence the meaning of both concepts will be described even if only delinquency will be measured. According to Pulkkinen (2001) antisocial behavior does not in general include breaking the law and thus is a milder form of delinquency. However, antisocial behavior can give an indication of the development of delinquency. Since the target group are early adolescents it is considered more likely that the population has norm breaking behaviors rather than criminal acts. However, both concepts are closely linked to each other and antisocial behavior can be treated as a part of delinquency. Therefore, several similarities exist between the concepts especially in adolescence. Thus, antisocial behavior may be the precursor to the development of delinquent behavior. Therefore, a complex interrelationship exists between the concepts.

During adolescence, individuals are exposed to risk behaviors for the first time, e.g. smoking, use of alcohol or drugs. In addition, youth with mental health problems are extra sensitive to different types risk-taking behaviors. A more serious type of risk behavior is different type types of violent crime (WHO, 2020). Antisocial behavior can be defined in several ways. According to Pulkkinen (2001) antisocial behavior involves several types of behaviors, but common is to break norms in the society. However, antisocial behavior does necessarily not contain criminal acts. It can be described as a deviant behavior of current attitudes and social norms in children and adolescents. In addition, American Psychiatric Association (2013) states that antisocial behavior is a form of aggressive behavior that can be expressed through, for example, bullying and rule-breaking behaviors such as theft and truancy. On the other hand, antisocial behavior also refers to lying or lack of empathic ability and guilt in situations where the individual has offended or deceive someone else.

How antisocial behavior is expressed can vary between individuals. However, the concept of antisocial behavior includes various forms of disruptive behaviors such as aggression problems. Furthermore, antisocial behavior can lead to further actions such as theft and other crimes. Adolescents who commit a crime or criminal act can be considered to have delinquent behavior. However, during adolescents it is more common to adopt a norm-breaking behavior rather than criminal behavior (Pulkkinen, 2001).

Delinquency can be defined as a violation of the law or a crime committed by an underage individual. Ingram et al. (2007) claims that delinquency can be understood from two perspectives. It can partly be defined as illegal behavior such as theft, which is a criminal act and violation of the law. However, the term also includes behaviors such as being addicted to drugs, alcohol, tobacco and to play truant. These can rather be described as status crimes and are directly related to minors and in that aspect, they are also considered to be a crime. This means that antisocial and deviant behaviors also can include delinquency. Sladky et al. (2015) states that delinquency can be partly explained as a criminal offense committed by a minor. If repeated crimes are committed it is classified as more serious delinquency. It has been found that adolescents with early onset of delinquency often continue to commit more serious crimes, which also continues into adulthood. In conclusion, antisocial behavior is a

wide concept that can include delinquency. It is important to notice antisocial behaviors which may be an indication for the development of more serious behaviors such as delinquency.

### **2.2.1 Risk factors for antisocial and delinquent behavior**

Pulkkinen (2001) claims that antisocial behavior includes different types of disturbing and aggressive behaviors. Thus, these behaviors can arise from situations which the individual experienced as a failure, and males tends to develop aggressive behavior to a wider extent than females. However, socioeconomic status of the family is a risk factor to antisocial behavior. A meta-analysis by Piotrowska, Stride, Croft, and Rowe (2015) show that socioeconomic status had a strong correlation with antisocial behavior among adolescents and children. Thus, adolescents with a higher social status had less antisocial behavior.

Adolescents with a delinquent behavioral are more likely to have troubles completing school. According to Thompson and Morris (2016), adolescents with delinquent behavior has lower grades in school than other peers. Previous research also shows that adolescents who have difficulties with mathematics, reading skills and writing skills are more likely to end up in prison later in life. Drop out of school are also a risk factor for delinquency, since adolescents who have not completed school are overrepresented in the justice system. In addition, Sladky, Hussey, Flannery and Jefferis (2015) argue that problems at school have a correlation with delinquency.

In addition, Falk et al. (2014) argue that the most violent crimes are committed by males, and it was concluded in a cohort study in Sweden. Common for those who committed crimes was that in their early youth they had problems with antisocial behavior, substance use and early onset of delinquency. According to WHO (2014), violence in society contributes to social problems in a wide range, i.e. cause illness, premature death and adversely affects health. All types of violence are related to social determinants such as gender norms, social norms, gender inequality, unemployment, and limited educational opportunities in society.

## **2.3 The association between mental health problems and antisocial behavior and delinquency among adolescents**

Several studies show that there is a relation between mental health problems and delinquency. Monahan, Oesterle, Rhew and Hawkins (2014) argues that the risk for development of both depressive symptoms and antisocial behavior increases during adolescence. This longitudinal study with adolescents in the eighth grade showed that depressive symptoms and antisocial behavior have common risk and protective factors. Overall, it was shown that high incidence of conflicts with friends and the family constituted risk factors for depressive symptoms and antisocial behavior. However, these served as protective factors when relations with friends and family were good. Alcohol use was an example of risk factor for antisocial behavior but not for the development of depressive symptoms. However, the risk of depressive symptoms increased in presence of conflicts with

the family or where there was history of antisocial behavior within the family. In addition, Basto Pereira and Maia (2017) argue that mental health problems are associated with delinquency and criminal thinking. Various psychosocial elements and family problems are also common risk factors for delinquency.

### **2.3.1 Depressive symptoms and delinquency**

Depressive symptoms and delinquent behaviors both start in the adolescence. There are studies that try to understand what comes first. In this debate, previous research suggests that adolescents with depressive symptoms are at greater risk of developing delinquent behavior. Kofler et al. (2011) claims that early depressive symptoms are associated with a greater risk for developing delinquent behavior. This longitudinal study with a sample with adolescents between 12- 17 years old indicates that early depressive symptoms are a predictor of delinquency rather than the opposite. This means that depressive symptoms are a significant risk factor for development of delinquency. It was also shown that girls with early depressive symptoms were more likely to develop delinquency than boys.

Several other studies had the same conclusion. Akse, Hale, Engels, Raaijmakers and Meeus's (2007) for example, their longitudinal study also showed that adolescents with depressive symptoms are more likely to develop delinquency. This is also confirmed by Manasse and Ganem (2009) who believe that depression can lead to delinquent behavior for both males and females. The study also showed that males with depressive symptoms had a 50 percent higher risk of developing delinquency than males without depressive symptoms. In summary delinquent behavior was in general more prevalent in adolescents experience depressive symptoms. Furthermore, Fanti, Colins and Andershed's (2019) found that adolescents with depression had a positive tendency to developing delinquency. Also, Ozkan, Rocque and Posick (2019), found a positive association between depression and antisocial behavior. Depression was a risk factor for antisocial behavior such as aggressive related crimes.

A study conducted in Sweden by Fazel et al. (2015) showed that depression was positively associated with delinquency and different types of violent crime. The study adjusted for individual factors like family and socio-demographic backgrounds, it still showed an increased risk of violent behavior among individuals with depression. Another longitudinal study by Anderson, Cesur and Tekin (2015) found that adolescents with depressive symptoms were at greater risk of developing delinquent behavior regarding property offenses. Crimes involving violence were not associated with depressive symptoms. In summary, there are existing associations between depressive symptoms and development of various forms of delinquent behavior.

Also, Vieno, Kiesner, Pastore, Santinello and Vieno's (2008) longitudinal study conducted on Italian adolescents indicates that depression is a risk factor for developing of an antisocial behavior. The study demonstrated a significant longitudinal relationship between depressive symptoms at t1 and antisocial behavior at t2 in both genders. Vermeiren, Deboutte, Ruchkin and Schwab-Stone (2002) found an association between depressive symptoms and higher levels of antisocial behavior. This result was valid regardless of gender. Therefore, there is substantial evidence that depression can be a risk factor for delinquency. Several longitudinal

studies have shown an increased risk for both males and females and with depressive symptom and the development of antisocial and delinquent behavior.

Moreover, a study by Ritakallio, Luukkaala, Marttunen, Pelkonen and Kaltiala-Heino (2010) conducted of Finnish adolescents in urban areas revealed a positive relationship between depressive symptoms and antisocial behavior. However, the study design was cross sectional, but the results showed that depression was associated with antisocial behavior among both males and females. In the present study associations will be measured both cross-sectional and longitudinally. Therefore, it is of interest to highlight previous research with cross-sectional design to get an idea of this associations perhaps is different.

### **2.3.2 Anxiety symptoms and delinquency**

The relationship between anxiety and antisocial behavior is not clearly understood. Some researchers suggest that anxiety is not associated with antisocial behaviors. In addition, some argue that anxiety rather is a protective factor for antisocial behavior. Vermeiren et al. (2002) cross-sectional study found no association between anxiety symptoms and antisocial behavior. Furthermore, Zara and Farrington (2009) found that anxiety, nervousness and social isolation are not associated with delinquency for adolescents.

Some studies instead suggest that depending on socioeconomic status, anxiety may be a risk factor for antisocial behaviors. According to Fontaine et al. (2019) are adolescents with anxiety at a higher risk for delinquency if they also come from a low socioeconomic status. This study concluded that delinquency and emotional problems are linked to each other. Therefore, they cannot develop independently of each other. The study also concluded that family socioeconomic status of the adolescents has an impact on the relationship. The association did not differ due to gender. Furthermore, Fanti et al. (2019), longitudinal study produced reversed results for the impact anxiety and depression had on delinquency. Depression was associated with delinquency, but the different relationship was shown for anxiety. Anxiety did not predict the development of delinquency. It was rather constituted as a protective factor.

### **2.3.3 The bidirectional association between mental health problems and delinquency**

However, the risk of mental health problems should also be noted in those with delinquent behavior. According to Thompson and Morris (2016) are two of the most common mental health problems globally among delinquent adolescents' depressive disorders (13–40 %) and anxiety disorders (25 %). Previous research also suggests that the opposite direction is possible, which means that delinquency can led to depression. Lalayants and Prince (2014) also state that it can be a bidirectional association. Depression can lead to delinquency but there is also the opposite relationship, which means that delinquent adolescents are at risk for developing different mental health problems.

Some authors instead conclude that antisocial and delinquent behaviors increase the risk of mental health problems. Mordre, Groholt, Kjelsberg, Sandstad and Myhre's (2011) study shown that antisocial behavior during childhood and adolescence was associated with the

development of mental health problems. Furthermore, Defoe, Farrington, and Lober's (2013) longitudinal study based on boys between 11 to 15 years old, showed that delinquency predicted depressive symptoms. According to Lalayants and Prince (2014) delinquency is associated with depression and substance use disorder. However, there is some ambiguity in the association, of what is the cause of what, whether it is delinquency leading to depression, depression leading to delinquency or if it is a bidirectional association (Lalayants & Prince, 2014). In summary, previous research has shown that the association between mental health problems and delinquency can be a bidirectional association. Some researchers suggest that depression can cause delinquency while adolescents with anxiety seems to be at lower risk for delinquency. This implies that it is unclear whether mental health problems are a risk factor for delinquent behavior.

## **2.4 Theoretical framework- The General Strain Theory**

Explaining why antisocial behavior and delinquency occurs seems complicated. Sladky et al. (2015) argue that delinquency is affected by several factors. According to Thompson and Morris (2016) it may be difficult to explain causes of delinquency from a theoretical perspective. However, theories can help explain risk factors that contribute to delinquency and research hypotheses. Delinquency can be explained by several factors. Borowski (2003) states that delinquency can be difficult to explain from a theoretical perspective due to inadequate empirical validation. Delinquency is almost impossible to explain with only one theory because there are so many factors that affects the outcome of delinquent behavior.

Among these possible models, the General Strain Theory (GST) was created by Robert Agnew (1992) and explains delinquency based on the fact that individuals can experience different strains. Agnew describes that strains can arise from different relationships in the way that the individual finds himself unfairly treated. Adolescents who feel mistreated in some way can react with aggressiveness and deviant behavior. The theory is based on primarily three major components. The first strain is about not having the opportunity to achieve goals the individual desires. It could be, for instance, to obtain social status in a group or the lack of financial resources. The second strain is related to loss of a positive stimuli, which can be attributed to the death of a related individual, traumatizing events, illness, or loss of property. The third type of strain is about negative emotional states and negative stimuli. For example, the condition may arise from a stressful situation, which can cause various forms of negative emotional states (Agnew, 1992).

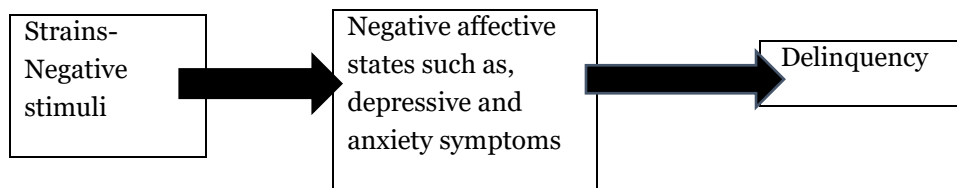
The theory is primarily applicable to adolescents who feel social pressure or strains. Social pressure can take several forms but can for example be derived from identity seeking in society. It can be about achieving personal goals, social identity, and economic status in the society. In addition, there could be expectations in the surroundings from others. This can lead to a situation where the individual experiences stress and frustration that create negative affective emotional states. Common affective conditions that can occur are depression, anxiety, and anger, which later can lead to delinquent behavior. The delinquency is a way for the individual to deal with the emotions (Agnew, 2006).

Froggio (2007) questions the applicability of Agnew's theory to the countries in Europe. This is because previous research has mostly been conducted in the USA. Therefore, it is of relevance to do studies in Europe with General Strain Theory to investigate how well the theory can explain delinquency in other contexts, especially in Europe. According to Agnew, (2006) the likelihood of negative emotions is increased regardless of which type of strain the individual experience. Peck's (2013) American longitudinal study showed that most of the strains measured had a significant association with increased levels of depressive symptoms. Therefore, this may indicate that there is a direct relationship between strains and negative emotions. The study also showed that those who experienced loads in the form of being unfairly treated or discriminated in greater extent are delinquent. Hoffmann (2019) examined the applicability of GST on delinquent behavior and depressive symptoms in a longitudinal study with an American sample. It showed an association between strains, depressive symptoms and delinquency. In addition, it was shown that the adolescents with a good relationship with their parents showed signs of decreased depressive symptoms.

GST is not specifically designed to explain the direct association between mental health problems and delinquency. However, it is considered relevant because it focuses on various negative emotions that can be attributed to depressive and anxiety symptoms. This is because previous research shows that adolescents with mental health problems also often have problems managing emotions. According to Dochnal et al. (2019) depression and anxiety are associated with difficulty in dealing with emotions. This is also confirmed in a meta-analysis by Schäfer, Naumann, Holmes, Tuschen-Caffier, and Samson (2017) who argue that adolescents with emotion regulation problems are also showing depressive and anxiety symptoms.

The theory also includes different strains. However, these will not be measured and therefore not presented in this study. Central parts of the theory are various negative affective states, that can be expressed by the individual as anxiety and depression. Over time, these conditions can lead to delinquency. GST is considered useful as theoretical framework to explain the relationship between mental health problems and delinquency in the present study. Therefore, this theory will be used when the results are analyzed.

All strains related to GST will not be measured in the present study. However, the strain related to negative stimuli and affective states from the theory will be used (*Figure 1*). In the present study depressive and anxiety symptoms will be measured and are therefore interpreted as negative affective states. Figure 1 shows an illustration of how GST is interpreted after the description of the theory. In the theory these will correspond to the strain related to negative emotional states, negative stimuli, and affective states. Therefore, the association between depressive symptoms, anxiety symptoms and delinquency will be investigated.



**Figure 1:** Illustration of General Strain Theory in the present study.

## 2.5 Problem formulation

Mental health problems, such as depression and anxiety are major public health problems among adolescents. Previous research has showed associations between mental health problems in adolescents and development of delinquent behavior. However, some researcher proposes that anxiety to some extent can be considered as a protective factor for delinquency. In addition, it is also unclear whether depression causes delinquency or whether delinquency causes depression, which indicate the presence of bidirectional associations since both relationships have been identified. Females suffer to a greater extent than males from depressive and anxiety symptoms. However, the presence of delinquency is more prevalent in males. The causal link between mental health problems and delinquency are to some extent unclear. Thus, more research is considered needed to broaden the knowledge about depressive and anxiety symptoms as risk factors for delinquency. Therefore, it is important to examine whether the association between mental health problems and delinquency differs from males and females. More knowledge is required to explain the causes of delinquency and to prevent the onset of depression and anxiety. Thus, more research is needed to establish if mental health problems can explain delinquency.

## 3 AIM AND RESEARCH QUESTIONS

The aim of the study is to investigate longitudinally, with a six-month follow-up the association between mental health problems (i.e. depressive and anxiety symptoms) and delinquency among Italian early adolescents and if this association differs for boys and girls.

The specific research questions of the study are:

1. Is there an association between depressive symptoms and delinquency at baseline?
2. Is there an association between anxiety symptoms and delinquency at baseline?
3. Is delinquency six months later partly explained by mental health problems at baseline?

4. Is the association between mental health problems at baseline and delinquency six month later different according to gender?

## **4 METHOD AND MATERIAL**

The following sections present the implementation of the study. This includes descriptions and justifications for the choices made in the study regarding study design, sample, data collection, statistical analyses, and considerations of research ethics.

### **4.1 Methodological approach**

The current study aims to investigate associations between mental health problems and delinquency. Also, in relation to previous research the intention is to investigate whether previous hypothesis can be confirmed. This is in accordance with the deductive approach which quantitative approaches are usually based. For this study, a quantitative method was chosen because the aim was to investigate the relationships between different variables with several measurements. The quantitative method was considered justified in order to investigate both cross-sectional associations and longitudinal associations, to enable comparisons over time. According to Creswell and Creswell (2018) is the quantitative method appropriate when the intention is to carry out hypothesis testing of pre-existing theories. This can be done by a collection of empirical data. Statistical analyses are then used to investigate measurable data and relationships between quantifiable variables. Previous research on mental health problems and delinquency was used as starting point and was applied as a framework for the design of this study. This study uses secondary data from adolescents in Italy.

### **4.2 Study design**

The data collection in the present study used secondary data from a study conducted by Giannotta, Settanni, Kliewer and Ciairano (2009). The previous study that collected the data was a quasi-experimental study. According to Mitchell (2015) the quasi-experimental study design enables relationships to be investigated over time and can give an indication of causal relationships. However, in the present study the intervention included in the previous conducted quasi-experimental study will not be used. Therefore, a cross-sectional design will be applied to measure associations at baseline. Moreover, a longitudinal design will be used including two different measurements. Creswell and Creswell (2018) argue that this study design makes it possible to monitor changes over time. In addition, the same study participants are followed over time for monitoring changes.



The longitudinal design enables to make comparisons over time with several measurements. The participants of the present study filled in the same questionnaires at two different points in time, t<sub>1</sub> (baseline) and t<sub>2</sub> (six-month follow-up). This makes possible to study the temporal relationship between the variables and allows for comparison of the different measurement sessions.

### **4.3 Sample and data collection**

In research studies, a selection is made from the total population that intended to study. The aim is to select a group of individuals that will represent the rest of the population. In order to obtain a representative sample, the sampled individuals need to have characteristics that resemble the total population studied. This is necessary in order to draw conclusions from the sample to the total population (Bruce, Pope, & Stanistreet, 2018). All participants in the 7th grade where the study was conducted were eligible to participate. However, only few schools were contacted and asked to participate. Therefore, the sample is a convenient sample. In the present study a sample of total 159 Italian adolescents were asked to participate in the study. All the participants were pupils. The participants that submitted a complete pre-test data were 155. Therefore, the sample consisted of 155 Italian students, (M= 12.24 yrs., SD= 0.47). In the sample there were 52 percent girls (n=81) and 48 percent were boys (n=74). The adolescents filled in a questionnaire before the intervention started, two months and six months after the end of intervention. It was a self-reported questionnaire the adolescents filled out when they were 12 years (Giannotta et al., 2009). Although the study contained three measurements, the present study used the first measurement and the last, which will be called t<sub>1</sub> and t<sub>2</sub> respectively. The final sample consisted of 155 participants that did a complete pre-test and the sixth month follow up questionnaires. In the present study, no external non-response occurred because all 7th graders in the selected school accepted to participate.

### **4.4 Measurements**

The variables used in the present study is presented below.

#### **4.4.1 Dependent variable**

In the present study, the dependent variable is delinquency. Delinquency was measured with a self-reported questionnaire, Problem Behavior Frequency Scale (PSFS) consisting of 28 items, which includes subscales measuring physical, verbal, and relational forms of aggression behavior, as well as various problem behaviors such as delinquency and drug use. In particular, delinquency scale was an index consists of 8 items with a sixth point frequency scale including response alternatives: *Never, 1–2 times, 3–5 times, 6–9 times, 10–19 times, or 20 or more* during the latest 30 days as they have performed a behavior. For example: *Taken something from a store without paying for it* (Appendix A). The alternatives of answers were

from 0 to 5 (not from 1 to 6 as it was in the original scale). Moreover, the scale was made by calculating a “mean” of the 8 items. According to Farrell, Sullivan, Gony and Le (2016) is PSFS considered to have a good validity and reliability for samples consisting of adolescents in school (Farrell, Sullivan, Gony & Le, 2016). In the present study Cronbach's alphas value for delinquency at t1 were 0.78 and at t2 were 0.70.

Internal non-response occurred in this study. According to Bryman (2016) internal non-response relates to participants not answering any or some of the questions in the questionnaire used. In the present study internal non-response was for delinquency at six-month follow-up (t2) n=148, 3.3 %.

#### **4.4.2 Independent variables**

In the present study, the independent variables are depressive symptoms and anxiety symptoms. Depressive symptoms were measured with self-reported questionnaire using the Child Depression Inventory (CDI) containing 27 items (Appendix A). Example of questions were: In the last 2 weeks, which best describes you: a) I am sad once in a while, b) I am sad many times; c) I am sad all the time (Kovacs, 1981; 1985). A validated version from Italy was used by Camuffo, Cerutti, Lucarelli and Mayer (1988). In the present study Cronbach's alphas value for depressive symptoms at t1 were 0.76 and at t2 were 0.65.

Anxiety symptoms were measured with self-reported questionnaire using the Revised Children's Manifest Anxiety Scale (RCMAS) containing 28 items (Appendix A). Example of item were: I get nervous when things do not go the right way (Reynolds & Richmond, 1978). The scale was translated into Italian and the translation was reviewed through linguistic validation (Giannotta et al., 2009). Cronbach's alphas value for the present study were anxiety symptoms at t1 were 0.78 and at t2 were 0.83. In the present study internal non-response for anxiety symptoms at baseline (t1) was n=153 1.3 %.

The present study will also examine if there are any differences among boys and girls. Therefore, gender is used as a moderator to stratify the sample. According to Field (2018) a moderator variable can affect the relationship between predictors and the outcome.

#### **4.4.3 Confounders**

According to Bruce et al. (2018) are confounders variables that possibly can affect a relationship between the dependent and independent variable. Therefore, it is important to consider confounders to verify that a relationship between dependent and independent variables does not change when confounders are considered. Thus, it is necessary to control for confounders to examine if associations for example become stronger or weaker, disappearing or appear, change from positive to negative. Without taking these into account, false associations can create.

According to Bruce et al. (2018) a confounder can be a predictor of the dependent variable. Pulkkinen (2001) confirms that the family's socioeconomic status can have an impact on the development of delinquent behavior. This is also confirmed by Piotrowska et al. (2015) who

argue that socioeconomic status can be a risk factor for delinquent behavior. Furthermore, Bruce et al. (2018) argues that confounders can be associated with the independent variable, however, not in the causal pathway between the independent and the dependent variable. This is in accordance with the study of Fontaine et al. (2019) who states that the socioeconomic status can affect the outcome of delinquency, because adolescents with low SES seems to be more vulnerable of having anxiety.

Potential confounders in the present study were the education level of the adolescent's parents because in earlier studies the family's socioeconomic status has been identified as risk factor due to development of delinquency. Therefore, these will be used as potential confounders that possibly can influence the association between mental health problems and delinquency. In the present study, the level of education for mother and father was used as potential confounders. This was considered justified because these can indicate the socio-economic status of the adolescent's family. Education level of mother and father was measured with the following two questions: Please state the level of education of your mother. Please state the level of education of your father. The response options were: 1. Elementary school 2. Middle school 3. Senior high school 4. Bachelor/master's degree 5. Doctor of Philosophy (PhD).

#### **4.5 Statistical Analysis**

The statistical program IBM SPSS Statistics (version 24) is used to analyze the data material. The analyze started with descriptive statistics in order to obtain an overview of the distribution of the studied variables in the sample. Histograms was used for frequency distribution to investigate if the data was normal distributed. Delinquency at baseline and at six-month follow-up was not normally distributed which means that the variable was skewed. Therefore, following analyzes were conducted with non-parametric tests.

This longitudinal study uses two occasions of measurements to analyze the associations between mental health problems and delinquency. First, to investigate whether the dependent variable, delinquency at baseline (t<sub>1</sub>) correlate with depressive symptoms at t<sub>1</sub>, and anxiety symptoms at t<sub>1</sub>. The associations at baseline will first be measured without predicting in the analysis. Spearman's rho was used since the variable of delinquency at baseline was skewed. This measure corresponds to the first and second research questions. According to Field (2018) it is advisable to use non-parametric parametric tests when the dependent variable is skewed. Therefore, Spearman's rho was used to analyze correlations. However, Spearman's rho is only used at baseline to measure correlations. In order to maintain an objective approach, it was chosen to retain the dependent variable in the original form as continuous. This is because the analyzes performed at baseline do not require a normally distributed variable. Therefore, to avoid losing information by categorizing the variable it was kept as continuous.

To investigate whether delinquency can be partly explained by mental health problems, multiple logistic regression analysis was performed. The model included both independent variable and potential confounders. The follow-up measure was conducted six months later

since the follow-up questionnaire was used to follow individuals over time. To answer research question three, to which extent depressive symptoms at t1 and anxiety symptoms at t1 affect delinquency at t2, several logistic regressions were conducted. According to Creswell and Creswell (2018) the logistic regression allows for adjustment of confounders. When having several independent variables in the logistic regression, it is a multiple logistic regression. Furthermore, in the previously conducted Quasi-experimental study also included an intervention. The intervention did not have any effect on the delinquency variable and was therefore excluded from the analysis.

Field (2018) argues that logistic regression analysis requires binary distribution in the dependent variable. Therefore, the delinquency variable was dichotomized as the normality could not be warranted and since the variable is skewed. Median was used as cut off ( $Md = 0.1250$ ) in order to split delinquency in “low” and “medium/high” delinquent behavior. Thus, the delinquency variable is categorical and can be used as dependent variable in the logistic regression. Depressive symptoms t1 and anxiety symptoms t1 are measured separately, hence, two separate regressions were performed. The first model includes depression at t1, and two confounders, i.e. mother and father’s level of education, as independent variables, and delinquency at t2 as dependent variable. The second model included anxiety at t1, and same confounders. Thus, delinquency at t2 is treated as dependent variable in both regressions. Multiple logistic regression analysis was considered justified as this study aims to investigate the impact of one independent variable at a time on the dependent variable and controlling for potential confounders.

To analyze the fourth research question, additional multiple logistic regressions were performed with a stratified sample. The sample was stratified into boys and girls to see if there were any differences in the association among mental health problems and delinquency due to gender. Furthermore, Merrill (2013) argue that an effective way to control and adjust for confounders is to use multiple regression analysis with stratification. By the use of stratification, the association between confounders and the dependent variable is reduced.

The highest acceptable level of statistically significant in the present study was  $p < 0.05$ . According to Bryman (2016) it means the probability that the results are caused by chance is less than 5%. Furthermore, when interpreting the results from logistic regression the confidence interval means that the true value of the population is within this range with 95% confidence.

## **4.6 Ethical considerations**

According to World Medical Association (2013) it is important to respect and protect the participants rights and health in research. Therefore, the “Helsinki declaration” is designed to maintain an ethical framework that protects individuals in research. In the present study, secondary data from Italy was used (Giannotta et al., 2009). The researchers who were responsible for collecting the data had considered the consent and information requirements (Giannotta et al., 2009). Before data was collected a request was sent through a letter to the parents of the adolescents to obtain their consent that their children may participate in the

study, which is in accordance with Italian law. Thereafter, the adolescents themselves gave their consent and were informed in connection with this that neither their parents nor their teachers would be able to access the collected material. The participants were not given any benefits for their participation in the study. The teachers were not present during the intervention or to survey administration (Giannotta et al., 2009).

Relevant ethical considerations in the present study were the utilization requirements and the confidentiality requirements. There was no knowledge of which school the participants came from. The data that was used contained only necessary variables for the purpose of the research questions of the present study to be answered. The data has only been used in the present study, kept protect from unauthorized persons and deleted after the thesis has been approved. All participants in the study were anonymous and in order to avoid identifying any individual participant and the data has been reported at a group level.

## 5 RESULTS

Initially, the results are presented in descriptive statistics for all variables. Continuous variables are presented with the mean and standard deviation (*Table 1*).

**Table 1:** Descriptive statistics for continuous variables.

	<b>M</b>	<b>SD</b>	<b>N</b>	<b>Range</b>
<b><i>Anxiety symptoms T1</i></b>	10.30	5.65	153	1-23
<b><i>Depressive symptoms T1</i></b>	9.35	4.77	155	1-28
<b><i>Father level of education</i></b>	3.22	1.00	155	1-5
<b><i>Mother level of education</i></b>	3.13	0.88	155	1-5
<b><i>Delinquency T1</i></b>	0.35	0.47	155	0-5
<b><i>Delinquency T2</i></b>	0.24	0.46	148	0-5

*M= Mean. SD=standard deviation. T1= Baseline. T2= Six-month follow-up*

In addition, since the dependent variable was skewed it is also presented with the median and interquartile range (*Table 2*).

**Table 2:** Central tendency for the dependent variable.

	<b>Md</b>	<b>Q1</b>	<b>Q3</b>	<b>IQR</b>
<b>Delinquency T1</b>	.2500	.1250	.5000	.3750
<b>Delinquency T2</b>	.1250	.000	.5000	.5000

*Md= Median. Q1=the first (lower) quartile. Q3=the third (upper) quartile. IQR=Interquartile Range.*

### 5.1 Associations between mental health problems and delinquency at baseline

Depressive symptoms were positively associated with delinquency at baseline (r of spearman =0.233, p=.004). Increased depressive symptoms were associated with increased delinquent behavior. However, according to Field (2018) the relation was weak.

Anxiety symptoms had not a significant association with delinquency at baseline. (r of spearman =0.145, p=.073).

### 5.2 Longitudinal associations between mental health problems and delinquency

It was fewer adolescents having medium/high delinquency behavior than low delinquency at six-month follow-up (Table 3).

**Table 3:** Number and percent for delinquency at t2. n=148

<i>Low delinquency:</i>	(n= 102)	68.92%
<i>Medium/high delinquency</i>	(n=46)	31.08 %

The longitudinal results showed a significant association between depressive symptoms at baseline and delinquency six months later after adjusting for the education level of mother and father. (OR=1.070, CI95%= 1.005 – 1.138, p=.034). The odds of having medium/high delinquency six months later increased by 7% for each one-unit increase in depressive symptoms at the baseline among adolescents. When measuring the association between anxiety symptoms at baseline and delinquency six months later, no significant association was found in the total sample (OR=1.041, CI 95%=.967–1.120, p=.283) (Table 4).

**Table 4:** Odds ratio (OR) with a 95% confidence interval (CI) for the longitudinal association between mental health problems and delinquency

Total sample	Exp. (B) Odds ratio	95 % CI	p=
<b>Depressive symptoms</b>	1.070	1.005–1.138	.034
<i>Education father</i>	.827	.553–1.238	.356
<i>Education mother</i>	.784	.501–1.226	.286
<b>Anxiety symptoms</b>	1.041	.967–1.120	.283
<i>Education father</i>	.756	.502–1.140	.182
<i>Education mother</i>	.827	.529–1.292	.404

*Mental health problems= Depressive and anxiety symptoms. Exp. (B) = Odds ratio. CI= confidence interval.*

### 5.3 Gender specific associations in the longitudinal relation between mental health problems and delinquency

It was more common for both boys and girls to have low delinquency than medium/high delinquency at six months follow-up (Table 5).

**Table 5:** Number and percent in low and medium/high delinquency for boys and girls.

Gender	Low delinquency	Medium/ high delinquency
Boys	n=48 32.43%	n=22 14.87%
Girls	n=54 36.48%	n=24 16.22 %

Furthermore, when the sample was stratified in boys and girls, no significant association was found among girls after adjusting for confounders in the model (Table 6). On the contrary, among boys, the association between depressive symptoms at baseline and delinquency six months later was significant ( $OR=1.177$ ,  $CI_{95\%}= 1.049 - 1.320$ ,  $p=.006$ ). The odds of having medium/high delinquency sixth month later increased by 17.7 % for each one-unit increase in depressive symptoms at the baseline among boys (Table 6).

In addition, longitudinal results showed significant association among boys between anxiety symptoms at baseline and delinquency six months later ( $OR=1.141$ ,  $CI_{95\%}= 1.011 - 1.288$ ,  $p=0.033$ ). The odds of having medium/high delinquency sixth month later increased by 14.1 % for each one-unit increase in anxiety symptoms at the baseline among boys (Table 6).

**Table 6:** Odds ratio (OR) with a 95% confidence interval (CI) for gender differences in the longitudinal association between mental health problems and delinquency

<b>Gender</b>	<b>Exp. (B) Odds ratio</b>	<b>95 %CI</b>	<b>p=</b>
<b>Boys</b>			
<b>Depressive symptoms</b>	1.177	1.049–1.320	.006
<i>Education father</i>	.782	.411–1.485	.452
<i>Education mother</i>	.678	.309–1.487	.332
<b>Girls</b>			
<b>Depressive symptoms</b>	1.032	.947–1.124	.477
<i>Education father</i>	.866	.484–1.552	.629
<i>Education mother</i>	.820	.443–1.518	.528
<b>Boys</b>			
<b>Anxiety symptoms</b>	1.141	1.011–1.288	.033
<i>Education father</i>	.721	.396–1.314	.285
<i>Education mother</i>	.725	.347–1.514	.392
<b>Girls</b>			
<b>Anxiety symptoms</b>	1,003	.899–1.119	.956
<i>Education father</i>	.762	.409–1.422	.393
<i>Education mother</i>	.886	.477–1.645	.701

*Mental health problems= Depressive and anxiety symptoms. Exp. (B) = Odds ratio. CI= confidence interval.*

## 6 DISCUSSION

The aim of the study was to investigate cross-sectionally and longitudinally the association between mental health problems, (i.e. depressive and anxiety problems) and delinquency among Italian early adolescents and if this association differs for boys and girls. The cross-sectional results showed a positive, although weak association, between depressive symptoms and delinquency. However, no association at baseline was found between anxiety symptoms and delinquency in the total sample.



Longitudinal results showed that depressive symptoms at baseline can partly explain adolescent's medium/high delinquent behavior after six-months follow-up but not anxiety. Furthermore, when gender differences were considered, it was shown that increased levels of depressive symptoms among boys increased the probability for having medium/high delinquent behavior at six-months follow-up. Also, increased levels of anxiety symptoms increased the probability for having medium/high delinquent behavior among boys. However, longitudinal results showed that there was no association for girls in depressive symptoms, nor in anxiety symptoms.

## **6.1 Method discussion**

The present study aimed to investigate whether mental health problems can predict delinquent behavior. A quantitative method was considered appropriate. In addition, a qualitative method would not allow to follow changes over time and to get an indication of the direction (Creswell and Creswell, 2018). On the other hand, a qualitative method could have contributed with a different understanding of the phenomenon. This study has a deductive approach which according to Creswell and Creswell (2018), means that previous research and theories are tested. Therefore, this study was based on risk factors identified in previous research for delinquent behavior to test hypotheses which is in accordance with the deductive approach. If the intention instead were to find new theories among the phenomenon an inductive approach would have been preferable.

This study has longitudinal data with two different measurements, which can establish a time relationship between studied variables. This is a strength since Creswell and Creswell (2018) claims that it is possible to discern changes over time with longitudinal studies and may indicate a causal direction in the relationship. In addition, a cross-sectional study design was applied for measuring associations at baseline, that included one measurement at same time. Creswell and Creswell (2018) claims that cross-sectional studies receive only a snapshot at the specific time of the survey. Therefore, the results could be different with another study design. Furthermore, Mitchell (2015) states that a Randomized Controlled Trial (RCT) could have established a causal relationship between the studied variables.

### **6.1.1 Sample and data collection**

The present study has used secondary data from a previous study in Italy. Therefore, in this study the data collection was effective concerning time and costs. One advantage of using secondary data was that two different measurements were obtained. It would not have been possible to carry out a data collection with several measurements due to the time limits in the present study. Therefore, the larger scope of material is an advantage that may improve validity in this study. In the present study, two measurement were used with a follow-up questionnaire, six-months later. The time frame between the two occasions for the questionnaires can be considered relatively short to establish a time order. Therefore, a longer period between the measurements could generate different results.

A disadvantage with the study can be the language because the questionnaires were originally in English and were translated into Italian. There is a risk that the questions may have been interpreted differently in the translation or that important content maybe have been missed. Another limitation with the use of secondary data is not being able to influence the design of the surveys. However, a self-designed questionnaire would probably not have received the same quality. The author in this study is unable to say whether there were any problems in the collection and processing of the data. However, the data collection was carried out by experienced researchers, which is considered reliable.

An advantage of the secondary data was that the questionnaires were already validated. It contributed to a good quality of this study including three different scales (PSFS), (CDI) and (RCMAS). It has contributed to more extensive materials than if a self-designed questionnaire had been used to collect data. Another advantage with the secondary data was that it allows access to a young study population. The adolescents were 12 years old, which requires approval from the guardian for the adolescent's participations in the research. It would probably not have been possible in the present study to gain access to such a young target group to collect data, as it requires ethical approval to conduct research with minors. In conclusion, the use of secondary data is considered beneficial. Instead more time was spent on carrying out analyses, which have contributed to more reliable conclusions.

Another disadvantage in this study is the questionnaires with self-reported data. According to Creswell and Creswell (2018), there is a risk of participants not answering entirely truthfully in these self-reported questionnaires. This may be due to the intention of withholding information, but it may also be due to other circumstances. For example, recall bias or lack of attention during implementation that may have affected how the adolescents responded the questionnaires. Adolescents themselves had to answer how often they had engaged in delinquent behavior in the last month. The same problems can be seen for depression where the participants share their emotions and feelings during the last two weeks. This can partly be considered as sensitive questions, and adolescents may not want to answer truthfully and therefore the results may have been underestimated. However, this does not necessarily mean that the adolescents have responded the questionnaires incorrectly. They can have given misleading information both intentionally and unintentionally. In conclusion, it is not possible to determine the extent to which they have responded the questionnaires truthfully.

Selection bias may occur, according to Bruce et al. (2018), when the characteristics of the participants differ from those individuals who have not been invited to participate. The consequences of this may be that the sample will not be representative, which can have an impact on the results. A small sample can also generate systematic errors according to Creswell and Creswell (2018), because the collected material can account false conditions in relation to the total population and can occur when that sample is not representative. Bruce et al. (2018) states that systematic errors lead to incorrect conclusions. By contrast, Creswell and Creswell (2018) argues that despite the limited sample, it is still possible to draw reasonable conclusions and find valuable information that leads to future research. In the present study, the risk of selection bias is considered to be elevated. This is because all the pupils in the sample come from the same school. This may cause that important characteristics of the participants have been lost since pupils from other schools is not

represented in the sample. This may have affected the generalizability when describing the distributions of the variables.

In the present study the sample is small compared to the total population. This poses a risk of selection bias because the sample may lack important characteristics of individuals who are not included in the sample. Furthermore, Bruce et al. (2018) argue that it is relevant to consider the number in the total population referred to in relation to the number of participants in the sample. Therefore, it is important to have a sufficiently large sample size. In the present study the interest was directed towards investigate the association between mental health problems and delinquency rather than to have a large sample. Therefore, several studies may be needed with a larger sample size to generate a representative sample of the total population. In the present study a convenience sample was applied which is considered to be an effective and time-saving selection method since the individuals who are available allows to participate. On the other hand, the generalizability of the results is more difficult as it only becomes valid for the studied population. In addition, another sample selection could enable for generalization of the results. According to Bruce et al. (2018) a random selection allows for everyone to participate.

### **6.1.2 Measurements and statistical analysis**

A strength is the absence of external non-response since all 7th graders were allowed to participate. However, internal non-response occurred, which means that participants have not answered all the questions in the questionnaires. However, these accounted for only 1,3 % in the variable for anxiety symptoms at t1 and in the variable delinquency at t2 of 3,3 % which is considered acceptable.

Initially, Spearman's rho was conducted to measure correlations at baseline. Spearman's rho was used since the dependent variable was not normally distributed. Therefore, non-parametric test was preferred to investigate associations. According to Field (2018) the Pearson's correlation requires the variables to be normally distributed. Therefore, the variables were retained in their original format when measuring associations.

The logistic regression was considered the most suitable analysis because it does not require normal distribution in the dependent variable. Since delinquency, was not normally distributed it was dichotomized to make it comparable. In order to be objective and avoid a distorted result, the median of delinquency was used as a cut off to divide the variable into two values. In this case, delinquency was dichotomized to low and medium/high delinquent behavior. A limitation with this approach is that important values can have been lost. This is because nuances and differences may have disappeared due to the dichotomization instead of considering the whole delinquency range which may have affected the association between the variables. After the dichotomization it was possible to perform logistic regression which considered to lead to a more credible result. In addition, a linear regression would have, according to Field (2018), required the dependent variable to be normally distributed and therefore the model was deemed inappropriate

Based on the purpose of the study and research questions, multiple logistic regression analysis was considered useful. This because it allows for examining the dependent variable in relation to several independent variables. It was considered beneficial because it is possible to include confounders in the model, which helps to control for their impact on the relationships. It is helpful to ascertain whether it is the independent variable that actually have caused the relationship with the dependent variable. This is considered a strength in this study because according to Creswell and Creswell (2018) confounders may otherwise have caused a false relationship if these are not controlled. By including confounders, this study has controlled a possible influence from the mother's and father's level of education. However, univariate analyses would have been needed to be able to compare how and if the odds ratio changes depending on influence from confounders.

Finally, gender was considered as a potential moderator, of the relationship between mental health problems and delinquency. Therefore, the sample was stratified to analyze whether the associations differed from boys or girls. However, a weakness with this, is that it is not possible to statistically measure whether the gender differences are significant. On the other hand, an overview of the odds ratio can be obtained to see differences between boys and girls.

Bruce et al. (2009) states that residual confounding can remain in the results, due to confounding factors that have not been measured. According to Mohanan et al. (2014) conflicts with family and friends can be risk factors for both depression and delinquency. Potential other confounders that have not been controlled in the present study can therefore be conflicts with friends and family. Other protentional confounders that have not been measured is related to the theory, e.g. different strains such as school failures which can be derived to the association between mental health problems and delinquency.

### **6.1.3 Quality criteria**

For the research to be credible and reliable, it is important according to Field (2018) to consider different quality criteria. This is to ensure accurate data of good quality that makes it possible to replicate the measurements in other contexts. Validity, reliability, and generalizability are used to assess the credibility in quantitative studies.

### **6.1.4 Validity**

It is important to verify the validity of the study and to verify the extent of what is intended to be measured and whether it has actually been measured. In the present study, three questionnaires have been used as measure instruments. Validity of the measurements (which is a part of the results) is derived from the measuring instruments used in the study. The present study is based on validated questionnaires used in previous research. These scales have been tested in several international research studies and are therefore considered to be validated instruments. Therefore, the validity of measurements is considered to be strengthened by the use of only previously proven scales. To measure mental health problems, the Child Depression Inventory (CDI) and Revised Children's Manifest Anxiety

Scale (RCMAS) were used. To measure delinquent behavior, the Problem Behavior Frequency Scale (PSFS) was used.

Furthermore, validity of the study is important when it comes to determining the extent to which conclusions in the study are relevant and useful. A high validity can therefore be considered to be obtained when the results of the study reflect reality and that is important for ensuring the quality and credibility of the study.

There are several aspects of validity, Construct validity is considered relevant in this study. According to Creswell and Creswell (2018) construct validity is used to assess the extent to which an instrument works in practice. This is related to the accuracy of an instrument to evaluate to which extent the instrument measure what was intended to be measured. According to Saylor, Finch, Spirito and Bennett (1984) Child Depression Inventory (CDI) is a reliable and high-quality instrument for measuring depressive symptoms that have been used worldwide (Saylor et al., 1984). Also, the (RCMAS) shows a good validity and reliability. The scale measures physical and emotional symptoms of anxiety (Lee, Piersel, Friedlander and Collamer, 1988; Reynolds, 1980). The Problem Behavior Frequency Scale (PSFS) is designed to measure various forms of aggression, problem behaviors such as drug use and delinquency. The scale is proven to be reliable in several studies, both for cross sectional and longitudinal studies and has been evaluated to measure various forms of problem behaviors (Farrell, Sullivan, Esposito, Meyer, 2005). This is in accordance with Bruce et al. (2018) who state that an instrument is considered valid when it has been used repeatedly and generated the accurate results the instrument is intended for. Thus, the validity of the study is considered to be strengthened since only well-proven scales have been used in the present study.

### **6.1.5 Reliability**

Reliability relates to the quality of the study internally. However, when repeated measurements are conducted, similar results indicate good reliability. This is a way to ensure the quality and trust of the study regarding used measuring instruments to check if similar results can be obtained on other occasions (Bruce et al., 2018).

Field (2018) argues that Cronbach's alpha ( $\alpha$ ) is a measure of internal consistency. Values obtained from a Cronbach's Alpha can vary between 0 to 1. Values over 0.7 indicates that the measurement is well calibrated. However, higher value indicates higher internal constancy. The internal constancy in depression at t2 is below acceptable level, however, this variable is not included in any measure. Furthermore, both measurement of anxiety and delinquency is acceptable which indicates that the measure is calibrated, and measure what it intends to measure. In summary, all the values used in the present study are acceptable according to Field (2018) which can strengthen the credibility of the study.

### **6.1.6 Generalizability**

According to Creswell and Creswell (2018), a good validity and reliability can create conditions for achieving generalizability of a study. Furthermore, Bruce et al. (2018) state

that generalizability indicates if the results of a study are valid for a different or larger population than the studied one. Therefore, Creswell and Creswell (2018) mean that it is relevant that the sample is representative of the context and the characteristics to be applicable for a larger population.

Generalizability can also be called external validity which, according to Creswell and Creswell (2018), entails generalizing the results to another context outside of the present study. The sample was from a middle school in an urban area in the northern Italy. However, external generalizability can also be limited because the sample size is small. Therefore, there is an imminent risk that the sample is not valid for other populations. On the other hand, the selection consists of a limited number of participants, which makes generalizability more difficult. Overall, it becomes difficult with the external generalizability due to the fact that the sample was not randomly selected. The purpose was to longitudinally examine the association between mental health problems and delinquency to obtain knowledge for the topic of interest, which can form the basis for future research.

In this study, there is a small and non-random sample, however, a larger sample may have affected the results in any direction, e.g. girls report mental health problems to a smaller extent in this sample. Thus, there may be an explanation to why boys with medium/high delinquent behaviors are more likely to report depressive and anxiety symptoms.

Furthermore, previous research indicates that females experience mental health problems to a wider extent than males. Therefore, more research is needed with a larger sample or with another study design to investigate the association between mental health problems and delinquency especially among females. In addition, to obtain internal higher validity a Randomized Control Trial study design is needed. The present study has a longitudinal design which have several strengths compared to a cross sectional, but it still not enough for pronouncing conclusions about the internal validity.

### **6.1.7 Ethical considerations**

In this study secondary data was used, the author of the thesis was not involved in all ethical considerations. However, previously researchers Giannotta et al. (2009) state that it was voluntary to participate in this study and consent for the children's participation was requested from their parents. Therefore, the research group is considered to have followed ethical guidelines. Regarding the requirement of use, the participants have not received any additional information on the implementation of this study. However, letters were sent to the parents of the adolescents with information about the purpose of the research before data collection was started in the previous study. Adolescents who chose to respond the questionnaire may also be considered to provide consent to their participation by completing them. However, the surveys were conducted during class time, which may have meant that the adolescents experienced peer pressure to participate.

The author in the present study has primarily considered the requirement of use and confidentiality. The data in the study contained no personal data and were preserved from unauthorized persons. The results of the study have been presented at group level to avoid an individual from being identified. Therefore, the anonymity of the participants has been

regarded throughout the study and the personal data has been treated confidentially. Therefore, the data in the present study have only been used to answer the purpose and research questions. After grading the thesis, the data will be deleted from the authors computer.

## **6.2 Results discussion**

In following paragraphs, the results of the study and the implications of the results for the public health field will be discussed.

### **6.2.1 Associations between mental health problems and delinquency at baseline**

The cross-sectional results in the present study showed a positive association between depressive symptoms and delinquency. This is in line with the cross-sectional study by Ritakallio et al. (2010), which also showed that depressive symptoms are associated with delinquency among both boys and girls (Ritakallio et al., 2010). However, this study has not examined which type of delinquency that is associated with depression such as violence and property crimes, which has been done in other studies (Ozkan et al. 2018; Fazel et al, 2015; Anderson et al, 2018). On the other hand, this study investigates early adolescents and it is thought that early adolescents maybe are more associated with antisocial behavior rather than violent crime and property crime. However, it is of interest to discover risk factors and health effects early on in life due to this behavior. In addition, in view of the age group included in the present study it is maybe more common to have an antisocial behavior rather than delinquency. However, the present study measured delinquency.

No significant association was found between anxiety symptoms and delinquency at baseline. This is consistent with Zara et al. (2009) study that states that, there is no association between anxiety symptoms and delinquent behavior. However, Fanti et al. (2019) point out anxiety as a protective factor for delinquent behavior. Thus, a possible explanation can be that adolescents who experience fear and concerns maybe choose to abstain from breaking norms. In addition, Vermeiren et al. (2002) argue that there is no association between anxiety and delinquency. This is in accordance with the present study results at baseline, that did not show any association between anxiety symptoms and delinquency.

### **6.2.2 Longitudinal associations between mental health problems and delinquency**

The present study also used a longitudinal study design, by use of multiple logistic regression, the longitudinal results indicates that adolescent's medium/high delinquent behavior six months later can partly be explained by depressive symptoms at baseline. The present study results are in line with previous longitudinal studies. According to Akse et al. (2017), Fanti et al. (2019) and Vieno et al. (2008) a positive relationship between depression and the development of delinquency exists among both boys and girls. Furthermore, Basto Pereira and Maia (2017) confirms that associations exist between several mental health problems and delinquent behavior. According to Kofler et al. (2011), depressive symptoms can be

explained by delinquency and therefore depression should be treated as a risk factor for the development of delinquent behavior. The results from the present study supports this statement, that it exists associations between depressive symptoms and having delinquent behavior.

Furthermore, in the present study, delinquency six months later cannot be explained by anxiety symptoms at baseline among adolescents. One explanation for this may be what Fontaine et al. (2019) state that socioeconomic status has an impact on the relationship between anxiety and delinquency. The results of Fontaine's study showed that adolescents with anxiety who also had a low socioeconomic status were at greater risk of developing delinquent behavior. Consequently, the fact that the role of SES was not investigated in this study can potentially explain why no association between anxiety and delinquency was observed in this study for the total sample. However, in the present study mother and father level of education was used as an indication of the adolescent's SES. However, in order to get more accurate measurements, household income may need to be measured in order to be compared with SES.

### ***6.2.3 Gender specific associations in the longitudinal relation between mental health problems and delinquency***

In the present study, an interesting finding was among boys because increased levels of depressive symptoms at baseline increased the probability for having medium/high delinquent behavior at six months follow-up. Furthermore, no significant differences were found among girls. This result is in contrast with Koflers et al. (2011) study, which shows that females with depressive symptoms develop delinquent behavior to a greater extent than males. On the other hand, Manasse et al. (2009) state that males with depressive symptoms had a 50 % higher risk of developing delinquent behavior than males without depressive symptoms. This can partially be confirmed in the present study because longitudinal results showed increased levels of depressive symptoms among boys at baseline increased the probability for having medium/high delinquent behavior six months later. Also increased levels of anxiety among boys increased the probability for having medium/high delinquency six months later.

### ***6.2.4 Discussion in relation to theoretical framework***

In the present study, the General Strain Theory was used as theoretical framework. The theory has been proven in previous research, but mostly in an American context and in criminology (Froggio, 2007). Therefore, the application of the theory in a public health perspective can be more complicated. However, the theory was considered relevant, since it explains why adolescents develop delinquent behavior. In line with the theoretical framework of this study, delinquency can according to Agnew (2006) be explained by different mental health issues since adolescents with mental health problems more often develop delinquency. The results from the present study follow this statement, since increased depressive symptoms at baseline among adolescents increased the probability for having medium/high delinquent behavior six month later. However, according to Sladky et al. (2015) can



delinquency be affected by several factors. Furthermore, Thompson and Morris (2016) and Borowski (2003) claims that it can be difficult to explain why adolescents develop delinquent behaviors.

Agnew (2006) argues that affective conditions such as depression can be derived from different strains. Stressful events such as the death of a close relative, failures in life or unfair treatment can be included in these strains. Furthermore, the theory claims that this can lead to development of different affective conditions. However, all strains have not been measured in the present study. Thus, the reason for depressive symptoms has not been investigated, nor the reason for anxiety symptoms. On the other hand, studies by Dochnal et al. (2019) and Schäfer et al. (2017) state that adolescents with problems with emotional regulation also show affective conditions like depressive symptoms and anxiety symptoms. As previously mentioned, this study has been limited to examining the part of the theory that states that affective states such as mental health problems can lead to delinquent behavior. In addition, Peck (2013) claims that there is an association between the strains and negative emotions such as depressive symptoms and the development of delinquency. Thus, there is research that has shown that depressive symptoms can be attributed to strains.

For future research, strains could be investigated, i.e. whether adolescents have issues in the relation with parents and friends, or experiences of failure or discrimination, especially factors that can explain the appearance of affective conditions. Seeing that, Monahan et al. (2014) claim that the risk for developing depressive symptoms and delinquent behavior increases at high incidence of conflicts with family or friends. Consequently, the longitudinal results from the present study is in line with the theory, delinquency can partly be explained by various mental health problems. Especially among boys, the longitudinal results showed that increased levels of depressive symptoms had an increased probability for medium/high delinquent behavior. In addition, increased levels of anxiety symptoms increased the probability for having medium/high delinquent behavior, however, only among boys. Hoffmann (2019) states that adolescents with depressive symptoms have an increased risk for the development of delinquent behavior. On the other hand, Froggio (2007) questioned the applicability of the theory in a European context. However, that study was conducted in 2007, and several contextual changes have occurred since then. The present study was conducted with an Italian sample, and the theory can be considered as working outside of USA and in a European context.

However, delinquency is a complex phenomenon and some studies have shown the existence of bidirectional associations. For example, Lalayants and Prince's (2013) study showed a bidirectional association. This means that adolescents with delinquency had a greater risk for developing mental health problems such as depression and anxiety. Studies by Defoe et al (2013) and Lalayants and Prince (2013) confirmed that adolescents with delinquent behavior are at greater risk for developing depressive symptoms. Therefore, suggestions for further research are to investigate whether delinquent behavior can predict mental health problems. This would be interesting because mental health problems did not explain delinquency among girls. This is to investigate whether delinquent behaviors can instead predict mental health problems for girls in particular.

### **6.3 The relevance to public health and future research**

This study may contribute with a broader knowledge in the field of mental health and delinquency. Furthermore, this knowledge seems to be valuable especially concerning males, since longitudinal results indicates that increased levels of depressive symptoms and anxiety symptoms among boys increased the probability to have medium/high delinquent behavior. Thus, these findings can contribute to wider knowledge of gender differences in the associations between mental health problems and delinquency. The implications of the study may be beneficial to school staff, and other professionals working with adolescents. The conclusion could also be the basis for health promotion work in schools and leisure centers. The results in the present study, may be helpful in further research in the field of public health. In addition, this study could be repeated with more participants and with a longer time for follow-up. However, delinquency seems to be a complex phenomenon and difficult to explain, due to existing evidence which indicates bidirectional associations. Therefore, it is of interest in the view of public health to further investigate the direction of the association.

## **7 CONCLUSIONS**

- Depressive symptoms were weakly positively associated with delinquency at baseline.
- Anxiety symptoms had not an association with delinquency at baseline.
- Adolescents having medium/high delinquent behavior at sixth month follow-up can partly be explained by depressive symptoms at baseline, but not by anxiety symptoms in the total sample.
- Increased levels of depressive symptoms and anxiety symptoms at the baseline among boys, increased the probability of having medium/high delinquent behavior six month later. In contrast, these results were not significant among girls.

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## APPENDIX A; QUESTIONNAIRE

### CHILDREN'S DEPRESSION INVENTORY (CDI)

Students have different feelings. This form lists the feelings and ideas in groups. From each group of three sentences, circle the letter next to the sentence that describes you best for the past two weeks. After you pick sentences from the first group, go on to the next group. Remember, there are no right or wrong answers.

1.     In the LAST 2 WEEKS, which best describes you . . .
  - a) I am sad once in a while.
  - b) I am sad many times.
  - c) I am sad all the time.
  
2.     In the LAST 2 WEEKS, which best describes you . . .
  - a) Nothing will ever work out for me.
  - b) I am not sure if things will work out for me.
  - c) Things will work out for me O.K.
  
3.     In the LAST 2 WEEKS, which best describes you . . .
  - a) I do most things O.K.
  - b) I do many things wrong.
  - c) I do everything wrong.
  
4.     In the LAST 2 WEEKS, which best describes you . . .
  - a) I have fun in many things.
  - b) I have fun in some things.
  - c) Nothing is fun at all.
  
5.     In the LAST 2 WEEKS, which best describes you . . .
  - a) I am bad all the time.
  - b) I am bad many times.
  - c) I am bad once in a while.
  
6.     In the LAST 2 WEEKS, which best describes you . . .
  - a) I think about bad things happening to me once in a while.

- b) I worry that bad things will happen to me.
  - c) I am sure that terrible things will happen to me.
7. In the LAST 2 WEEKS, which best describes you . . .
- a) I hate myself.
  - b) I do not like myself.
  - c) I like myself.
8. In the LAST 2 WEEKS, which best describes you . . .
- a) All bad things are my fault.
  - b) Many bad things are my fault.
  - c) Bad things are not usually my fault.
9. In the LAST 2 WEEKS, which best describes you . . .
- a) I do not think about killing myself.
  - b) I think about killing myself but I would not do it.
  - c) I want to kill myself.
10. In the LAST 2 WEEKS, which best describes you . . .
- a) I feel like crying everyday.
  - b) I feel like crying many days.
  - c) I feel like crying once in a while.
11. In the LAST 2 WEEKS, which best describes you . . .
- a) Things bother me all the time.
  - b) Things bother me many times.
  - c) Things bother me once in a while.
12. In the LAST 2 WEEKS, which best describes you . . .
- a) I like being with people.
  - b) I do not like being with people many times.
  - c) I do not want to be with people at all.

13. In the LAST 2 WEEKS, which best describes you . . .
- a) I cannot make up my mind about things.
  - b) It is hard to make up my mind about things.
  - c) I make up my mind about things easily.
14. In the LAST 2 WEEKS, which best describes you . . .
- a) I look O.K.
  - b) There are some bad things about my looks.
  - c) I look ugly.
15. In the LAST 2 WEEKS, which best describes you . . .
- a) I have to push myself all the time to do my schoolwork.
  - b) I have to push myself many times to do my schoolwork.
  - c) Doing schoolwork is not a big problem.
16. In the LAST 2 WEEKS, which best describes you . . .
- a) I have trouble sleeping every night.
  - b) I have trouble sleeping many nights.
  - c) I sleep pretty well.
17. In the LAST 2 WEEKS, which best describes you . . .
- a) I am tired once in a while.
  - b) I am tired many days.
  - c) I am tired all the time.
18. In the LAST 2 WEEKS, which best describes you . . .
- a) Most days I do not feel like eating.
  - b) Many days I do not feel like eating.
  - c) I eat pretty well.
19. In the LAST 2 WEEKS, which best describes you . . .
- a) I do not worry about aches and pains.
  - b) I worry about aches and pains many times.

- c) I worry about aches and pain all the time.
20. In the LAST 2 WEEKS, which best describes you . . .
- a) I do not feel alone.
  - b) I feel alone many times.
  - c) I feel alone all the time.
21. In the LAST 2 WEEKS, which best describes you . . .
- a) I never have fun at school.
  - b) I have fun at school once in a while.
  - c) I have fun in school many times.
22. In the LAST 2 WEEKS, which best describes you . . .
- a) I have plenty of friends.
  - b) I have some friends but I wish I had more.
  - c) I do not have any friends.
23. In the LAST 2 WEEKS, which best describes you . . .
- a) My schoolwork is alright.
  - b) My schoolwork is not as good as before.
  - c) I do very badly in subjects I used to be good in.
24. In the LAST 2 WEEKS, which best describes you . . .
- a) I can never be as good as other kids.
  - b) I can be just as good as other kids if I want to.
  - c) I am just as good as other kids.
25. In the LAST 2 WEEKS, which best describes you . . .
- a) Nobody really loves me.
  - b) I am not sure if anybody loves me.
  - c) I am sure that somebody loves me.
26. In the LAST 2 WEEKS, which best describes you . . .

- a) I usually do what I am told.
- b) I do not do what I am told most times.
- c) I never do what I am told.

27. In the LAST 2 WEEKS, which best describes you . . .

- a) I get along with people.
- b) I get into fights many times.
- c) I get into fights all the time.

### REVISED CHILDREN’S MANIFEST ANXIETY SCALE (RCMAS)

Read each question carefully. For each sentence, circle the word **YES** if you think it is **true** about you. Circle the word **NO** if you think it is **not true** about you.

Circle your answer.

- |  | [1] | [2] |
|--|-----|-----|
| 1. I have trouble making up my mind.....                   | Yes |     |
| No   |     |     |
| 2. I get nervous when things do not go the right way.....  | Yes |     |
| No   |     |     |
| 3. Others seem to do things easier than I can.....         | Yes |     |
| No   |     |     |
| 4. Often I have trouble getting my breath.....             | Yes |     |
| No   |     |     |
| 5. I worry a lot of the time.....                          | Yes |     |
| No   |     |     |
| 6. I am afraid of a lot of things.....                     | Yes |     |
| No   |     |     |
| 7. I get mad easily.....                                   | Yes |     |
| No   |     |     |
| 8. I worry about what my parents will say to me.....       | Yes |     |
| No   |     |     |
| 9. I feel like others do not like the way I do things..... | Yes |     |
| No   |     |     |

10. It is hard for me to sleep at night..... Yes  
No

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11. I worry about what other people think of me..... Yes  
No

12. I feel alone even when there are people with me..... Yes  
No

13. Often I feel sick to my stomach..... Yes  
No

14. My feelings get hurt easily..... Yes  
No

15. My hands feel sweaty..... Yes  
No

16. I am tired a lot..... Yes  
No

17. I worry about what is going to happen to me..... Yes  
No

18. Other children are happier than I am..... Yes  
No

19. I have bad dreams..... Yes  
No

20. My feelings get hurt easily when I am fussed at..... Yes  
No

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21. I fear someone will tell me I do things the wrong way..... Yes  
No

22. I wake up scared some of the time..... Yes  
No

23. I worry when I go to bed at night..... Yes  
No

24. It is hard for me to keep my mind on my schoolwork..... Yes  
No

25. I wiggle in my seat a lot..... Yes  
No

26. I am nervous..... Yes

- No
27. A lot of people are against me..... Yes
- No
28. I often worry about something bad happening to me..... Yes
- No

## PROBLEM BEHAVIOR FREQUENCY SCALE

We are interested in how often students your age do different kinds of things. Think about how often you have done the following things **IN THE LAST 30 DAYS**. Circle the number choice for your answer to each question. Remember, your answers are private and will not be shared with anyone.

	[0]	[1]	[2]	[3]	[4]	[5]
<b><u>In the LAST 30 DAYS,</u></b> <b><u>how many times have you ...</u></b>	<b>Never</b>	<b>1-2 times</b>	<b>3-5 times</b>	<b>6-9 times</b>	<b>10-19 times</b>	<b>20 or more times</b>
1. Thrown something at someone to hurt them	0	1-2	3-5	6-9	10-19	20 +
2. Not let another student be in your group anymore because you were mad at them	0	1-2	3-5	6-9	10-19	20 +
3. Been in a fight in which someone was hit	0	1-2	3-5	6-9	10-19	20 +
4. Told kids in your group not to let someone be part of your group anymore	0	1-2	3-5	6-9	10-19	20 +
5. Been on suspension	0	1-2	3-5	6-9	10-19	20 +
6. Skipped school because you felt that you would be unsafe at school or on your way to or from school	0	1-2	3-5	6-9	10-19	20 +
7. Threatened to hurt a teacher	0	1-2	3-5	6-9	10-19	20 +
8. Said things about a kid behind their back to hurt their reputation with other kids.	0	1-2	3-5	6-9	10-19	20 +
9. Started a fight between other people	0	1-2	3-5	6-9	10-19	20 +
10. Stolen something from another student	0	1-2	3-5	6-9	10-19	20 +
11. Told another kid you wouldn't like them unless they did what you wanted them to do	0	1-2	3-5	6-9	10-19	20 +

	[0]	[1]	[2]	[3]	[4]	[5]
<b><u>In the LAST 30 DAYS,</u></b> <b><u>how many times have you ...</u></b>	<b>Never</b>	<b>1-2</b> <b>times</b>	<b>3-5</b> <b>times</b>	<b>6-9</b> <b>times</b>	<b>10-19</b> <b>times</b>	<b>20 or</b> <b>more</b> <b>times</b>
12. Passed a hurtful note or e-mail about another kid.	0	1-2	3-5	6-9	10-19	20 +
13. Insulted someone's family	0	1-2	3-5	6-9	10-19	20 +
14. Shoved or pushed another kid	0	1-2	3-5	6-9	10-19	20 +
15. Threatened someone with a weapon (gun, knife, club, etc.)	0	1-2	3-5	6-9	10-19	20 +
16. Secretly tried to take away a boyfriend or girlfriend that your friend was already going with.	0	1-2	3-5	6-9	10-19	20 +
17. Drunk beer (more than a sip or taste)	0	1-2	3-5	6-9	10-19	20 +
18. Drunk wine or wine coolers (more than a sip or taste)	0	1-2	3-5	6-9	10-19	20 +
19. Snuck into someplace without paying, such as into the movies or onto a bus	0	1-2	3-5	6-9	10-19	20 +
20. "Dropped" a friend and made a new friend to get back at them.	0	1-2	3-5	6-9	10-19	20 +
21. Brought a weapon (knife or gun) to school	0	1-2	3-5	6-9	10-19	20 +
22. Hit or slapped another kid	0	1-2	3-5	6-9	10-19	20 +
23. Smoked cigarettes	0	1-2	3-5	6-9	10-19	20 +
24. Told a kid something untrue about their friend to secretly harm their friendship.	0	1-2	3-5	6-9	10-19	20 +
25. Been in a fight in which you were injured and had to be treated by a doctor or nurse	0	1-2	3-5	6-9	10-19	20 +
26. Threatened to hit or physically harm another kid	0	1-2	3-5	6-9	10-19	20 +
27. Teased someone to make them angry	0	1-2	3-5	6-9	10-19	20 +
28. Gone behind a kid's back and shared their private information with other kids to make them look bad.	0	1-2	3-5	6-9	10-19	20 +



	[0]	[1]	[2]	[3]	[4]	[5]
<b><u>In the LAST 30 DAYS,</u></b>		<b>1-2</b>	<b>3-5</b>	<b>6-9</b>	<b>10-19</b>	<b>20 or</b>
<b><u>how many times have you ...</u></b>	<b>Never</b>	<b>times</b>	<b>times</b>	<b>times</b>	<b>times</b>	<b>more</b>
						<b>times</b>
29. Tried to keep others from liking another kid by saying mean things about him/her	0	1-2	3-5	6-9	10-19	20 +
30. Skipped school	0	1-2	3-5	6-9	10-19	20 +
31. Put someone down to their face	0	1-2	3-5	6-9	10-19	20 +
32. Told another kid that they couldn't join your group when they asked to.	0	1-2	3-5	6-9	10-19	20 +
33. Given mean looks to another student	0	1-2	3-5	6-9	10-19	20 +
34. Spread a false rumor about someone	0	1-2	3-5	6-9	10-19	20 +
35. Been drunk	0	1-2	3-5	6-9	10-19	20 +
36. Ignored another kid when they approached your group.	0	1-2	3-5	6-9	10-19	20 +
37. Picked on someone	0	1-2	3-5	6-9	10-19	20 +
38. Cheated on a test	0	1-2	3-5	6-9	10-19	20 +
39. Taken something from a store without paying for it (shoplifted)	0	1-2	3-5	6-9	10-19	20 +
40. Started whispering about another kid and pointing at them when they walked by.	0	1-2	3-5	6-9	10-19	20 +
41. Left another kid out on purpose when it was time to do an activity	0	1-2	3-5	6-9	10-19	20 +
42. Written things or sprayed paint on walls, sidewalks, or cars where you were not supposed to	0	1-2	3-5	6-9	10-19	20 +
43. Drunk liquor (like whiskey or gin)	0	1-2	3-5	6-9	10-19	20 +
44. Told another kid you would tell their "private" information unless they did what you wanted them to do.	0	1-2	3-5	6-9	10-19	20 +
45. Said things about another student to make other students laugh	0	1-2	3-5	6-9	10-19	20 +
46. Damaged school or other property that did not belong to you	0	1-2	3-5	6-9	10-19	20 +

	[0]	[1]	[2]	[3]	[4]	[5]
<b><u>In the LAST 30 DAYS,</u></b>		<b>1-2</b>	<b>3-5</b>	<b>6-9</b>	<b>10-19</b>	<b>20 or</b>
<b><u>how many times have you ...</u></b>	<b>Never</b>	<b>times</b>	<b>times</b>	<b>times</b>	<b>times</b>	<b>more</b>
						<b>times</b>
47. Used marijuana (pot, hash, reefer)	0	1-2	3-5	6-9	10-19	20 +
48. Tried to make a kid look bad by sharing their "private" information when you were with them and a group of other kids.	0	1-2	3-5	6-9	10-19	20 +
49. Carried a weapon (gun, knife, club, etc.)	0	1-2	3-5	6-9	10-19	20 +
50. Rolled your eyes and glared at another kid.	0	1-2	3-5	6-9	10-19	20 +





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