REVISITING GENERAL STRAIN THEORY: STUDYING THE PREDICTORS OF ADOLESCENTS' ANTISOCIAL BEHAVIOR IN VESTLAND COUNTY, NORWAY[1]

Abstract

By deriving data from the Young in Norway (UNGDATA 2021) Survey's Vestland County package (N=13,326), this study investigated the determinants of antisocial behavior (ASB) among high school students in Vestland County, Norway. This research used Agnew's General Strain Theory (GST) and found that among negative stimuli variables, bullying, depression, hate speech, and sexual harassment were significant predictors, while pressure was not related to ASB among high school students in the first model. When controlled for school well-being and positive family relations in the second model, hate speech and sexual harassment were still significant, but depression turned out to be a negative predictor for ASB, and pressure and bullying became unrelated to ASB. School well-being and positive family relations as positive stimuli variables were significant in negatively predicting ASB. The equation includes demographic and other control variables in the final model. Except for bullying, GST measures of negative stimuli, such as pressure, hate speech, sexual harassment, and depression (negatively), significantly predicted ASB. Among demographic and control variables, gender (female), religiosity, and parental higher education were negatively associated with ASB. Whereas years of schooling (age), smoking, and urban (Bergen city area) were positively related to a high volume of ASB. From a criminological point of view, low financial status is generally associated with higher levels of ASB. The present research revealed that the perceived economic status of the family was positively associated with ASB. Besides, this study showed that depending on the context of the study population, negative stimuli measures could change their nature (strength and direction) concerning ASB when controlled for demographic and other related variables. Finally, the implications of the findings of this study were discussed in terms of theory in use, youth policy, and future study in advance.

Keywords: Antisocial Behavior, General Strain Theory, High School Students, Ungdata, Vestland County, Norway

INTRODUCTION

Determinants of antisocial behaviors among adolescents have been a matter of focus among researchers, politicians, and practitioners. Antisocial behaviors are often seen as indicators of serious future delinquency among adolescents (Pardini, 2006; Pardini et al., 2007; Windle, 1990). The current study aimed to explore correlates of antisocial behavior (hereafter ASB) among high school students (N=13,326) in Vestland County, Norway. To do so, Agnew's general strain theory (GST) was used as a tool to better understand the relationship between possible independent variables and ASB. General strain theory has largely been used as a theoretical approach to study delinquency, crime, and antisocial behavior (in terms of the current study) for nearly three decades (Agnew, 1992; Barlett et al., 2021; L. Broidy & Agnew, 1997; Mazerolle, 1998; Moon et al., 2008; Morash & Moon, 2007; Piquero & Sealock, 2004; Song, 2020; Zavala et al., 2021)

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A couple of studies examined the relationship between antisocial behavior, leisure activities, and other violent offending among school children in Norway (Frøyland et al., 2020; Heradstveit et al., 2021; Pedersen et al., 2018; Torgersen, 2001). Most of these studies were done in Oslo and did not primarily focus on the determinants of antisocial behavior from a criminological point of view, as one can argue. For example, Heradstveit et al. (2021) studied adolescents' past-year cannabis use, municipality, time, sex, school grade, geographical location, and municipality population. Frøyland et al. (2020) focused on physical fighting and leisure activities among school children in Oslo. Pedersen et al. (2018) examined the influences of neighborhood and school on the alcohol socialization progression among school children in Oslo. Torgersen (2001) studied patterns of self-reported delinquency in adolescents with immigrant and Norwegian parents in Oslo. Finally, (Mahoney & Stattin, 2000) focused on leisure activities and juvenile antisocial behavior in Sweden. (Sønsteby, 2012) used "Young in Norway" data, carried out in 1992 (T1), with follow-ups in 1994 (T2), 1999 (T3), and 2005 (T4). This author studied the relationship between antisocial behavior and sportive activities among high school students and found that organized physical activity can act as a protective factor against the development of antisocial behavior in adolescents.

The current study employs a slightly different approach and puts a criminological theory (General strain theory–GST) in charge of studying the determinants of antisocial behaviors among high school students in Vestland County, Norway. Besides determinants of antisocial behavior, this study employs mediating control variables to see the extent of the relationship between study variables and control variables to predict antisocial behavior. The current research finally includes demographic variables to understand whether these demographic factors have some specific effects on antisocial behavior in addition to study and control variables.

LITERATURE & THEORETICAL FRAMEWORK

According to general strain theory (GST), people who experience strain or pressure often get upset. As a reflection of this pressure and strain, they sometimes engage in criminal behavior. It must be considered that the GST does not claim that every individual who experiences strain will end up engaging in antisocial behavior. GST claims that a person, in general, may end up showing antisocial behavior under these conditions: (1) Failure to achieve positively valued aims, (2) removal of positive stimuli, and (3) the introduction of negative stimuli. The GST argues that anti-social behavior can stem from meeting a need. If a person is in poverty, one can steal money to fulfill his/her needs; escape from a negative source of strain (fleeing home due to domestic violence); pursue revenge against the cause of their strain (attacking bullying peers); and feel well (use drugs). GST (a) lists the main types of strain, (b) explains why strains lead to crime, (c) describes the characteristics of these strains which are most likely to cause crime, and (d) identifies the factors that increase the likelihood that adolescents will respond to charges of crime (Agnew & Brezina, 2019).

The main types of strain

To Agnew & Brezina (2019), large types of strain are likely to happen when people lose something they value (lose something good). For example, their property can be stolen, a close acquaintance may die, or a near partner may leave them. Secondly, people can be treated in an aversive or undesirable way by others (receive something bad). For example, they can be verbally or physically abused by others. Moon et al. (2008) found that current and older teachers' physical and emotional punishments and victimization were positively related to general failure among Korean youth. Third, people may not be able to achieve their goals (failing to get something they want). For example, they may not be able to raise the money or respect they want.

Gendering strain

Literature on gender and strain suggests that women may be more likely than men to experience strains. Nevertheless, many of these strains do not contribute to crime, especially other-directed offending. There is reason to believe that men are more likely to experience the types of strain that contribute to crime. However, males and females can experience different types of strain at different grades. Traditionally, females are more prone to report both depression, anxiety, and anger (Joon Jang, 2007; Piquero & Sealock, 2004; Zavala et al., 2021). For example, while females are more vulnerable to gender-based discrimination and excessive demands from others, males are more likely to feel financial strain and are prone to different types of victimization (L. Broidy & Agnew, 1997). Women's anger is more often accompanied by emotions such as guilt, depression, and anxiety. It results from gender differences in socialization and social position; anger is seen as inappropriate for women, and women are more concerned with harming others and disturbing valued relationships. Males, nevertheless, more often experience moral outrage in response to strains (Agnew & Brezina, 2019; Zavala et al., 2021).

Strain, especially in adolescents

Adolescents experience more stress than children and adults, partially because they live in a larger and more challenging social world. Young people leave primary school and go into secondary school. Unfortunately, young people lack the social and problem-solving skills of adults. A lack of experience and limited brain development can be reasons that skew them towards impulsive behavior. Young people also lack necessary coping resources, such as the economy and power. Furthermore, the cost of crime is lower for young people (Agnew & Brezina, 2019). For Agnew (2006), the GST can use individual differences to explain group differences in crime. The GST has also been used to explain group differences in offenses, including sex, race, age, class, and public and societal differences.

Strain and antisocial behavior

Several studies showed that strain or pressure can be important markers for later development, including antisocial behavior (Akers, 2017; Warr, 2002). For example, Higgins et al. (2011) suggested that the progress of general strain theory (GST) led to a renewed focus on the influence of negative life experiences on antisocial behavior, and their analysis of data from a national sample of 413 children and adolescents showed that high peer rejection was related to high delinquency/crime among males but not among females. In addition, Brown et al. (2018) claimed that adolescents who learn to reduce the relevance of strain will be less likely to resort to antisocial behavior. Besides, adolescents with less developed decision-making and less-controlled emotions do not have enough psychological resources to successfully resolve problems through conventional strategies, these stressful situations for them could be strong catalysts for problems. In return, pursuing violence and antisocial behaviors might be one-way youth cope with the challenges in their daily lives (Chassin et al., 2010; Simons et al., 2003). Strains, including family problems, neighborhood disorganization, perceived injustice, and less-effective social organizations, deepen the common developmental challenges with which adolescents must cope (Uink et al., 2018). These types of cumulative pressures might force adolescents to behave in the form of delinquency and other antisocial behaviors (Agnew, 1992; Simons et al., 2003).

RESEARCH QUESTIONS:

1. To what extent does negative stimulus (bullying, sexual harassment, pressure, depression) affect students' antisocial behavior?
2. To what extent does the introduction of positive stimulus (positive family relations and school well-being) affect students' antisocial behavior?

3. Do demographic characteristics (gender, years of schooling-age, parental education, economic status, smoking, and religiosity) have some specific effects on students' anti-social behaviors?

DATA AND METHODS

Vestland County lies mainly in the southwest of Norway and comprises 43 local municipalities, all of which have a coastline. Vestland County is the third-largest county with a population of 638,821 in Norway. The primary industries apply to both fishing on the coast, partly in combination with fish farming and agriculture in the county in general. Vestland County's industry has a clear main emphasis on the engineering industry with 52 percent of the industry's total employment (2017), of which 25 percent is the machinery industry, 14 percent construction of ships and oil drilling platforms and 10 percent the metal goods industry. Vestlanders are also known for their interest in arts and music, and they played vital roles in the liberation of Norway (i.e., Edvard Greig and Christian Michelsen). Vestland County runs 47 high schools. Of the schools, 16 are in Bergen city. The county has three private high schools, two in Bergen and one in Balestrand.[i]

The Survey Instrument

The data for this study is derived from Ungdata, in other words, Young in Norway, which was obtained via a cross-sectional survey administered in Norway in 2021. The questionnaire comprises a compulsory basic module, which is used in all surveys, and a set of optional, pre-defined questions, from which municipalities can choose. Ungdata survey includes questions about family and friends, health and quality of life, school and the future, leisure, risk behavior, drugs, society, and use of services (Frøyland, 2017).[ii] The client (municipalities) can also supplement with self-composed questions. Both parents and students were informed about the survey, and parental consent was granted before the students took the survey. Volunteered participants were given excess one-time code to log in survey link on the web during school times. The surveys took place between February and April 2021 during school hours and were carried out electronically among students in high schools in Norway (Ungdata Vestland, 2021, p. 3). The survey was held under Covid-19 preventive measures times, and more importantly school variable did not exist in the Ungdata Vestland county package. Ungdata results from a collaboration between the research institute NOVA at Oslo and Akershus University College, seven regional competence centers (KoRus Vest Bergen, KoRus Vest Stavanger, KoRus Midt-Norge, KoRus Øst, KoRus Sør, KoRus Nord, KoRus Oslo) and the Municipal Sector organization (KS). The project is financed by the State Budget through grants from the Norwegian Directorate of Health. This study, however, focuses on just Vestland County in Norway and uses self-reported values in Ungdata 2021.[iii]

Sample Characteristics

Ungdata targeted the whole population of students (all possible participants) in Vestland County, and therefore, a random sampling strategy was not employed. Additionally, municipalities, schools, and students were not obliged to take the Ungdata survey. The municipality variable showed that 2 out of 43 local municipalities did not participate in the survey. According to Statistics Norway, there were 23,869[iv] high school students in Vestland County in 2021. The current study had 13326 cases, which corresponded to 55.8% of the whole population of high school students. High school students from first to third classes took the survey, and the response rate was 69% (n=13,326) out of 19,281 participants (Ungdata Vestland, 2021, p. 3).

Methods & Procedures

This study crated necessary index variables based on the question groups in the Ungdata package. For example, depressive symptoms had seven questions, and these were indexed

among themselves. Thus, each index was created by using its question groups in the data set. To do so, reliability analysis (Cronbach's alpha) (Taber, 2018) and factorial analysis (Field, 2013, p. 639) were carried out to create index variables "…and have designed your study based on underlying constructs that are expected to produce scores on your observed variables, FA is your choice" (Tabachnick & Fidell, 2018, p. 498). The variables which did not give a factor under the circumstances (Eigen value=1) were eliminated (Field, 2013, pp. 639–640; Hayton et al., 2004, p. 193; Kaiser, 1960). The variables with very low Cronbach's alpha levels were also eliminated from the analysis. For example, attendance at the organized activities had a very low alpha level (α=.35). Therefore, this variable was excluded from the analysis. In addition, Field (2013) suggests that significance tests of skewness and kurtosis should not be used in large samples (because they are likely to be significant even when skewness and kurtosis are not too different from normal). Log transformations were carried out for the variables ASB, sexual harassment, bullying, and hate speech to avoid possible kurtosis and skewness problems (Field, 2013; Mertler et al., 2021). The result suggested the deviation of data from normality was not severe as the value of skewness and kurtosis index were below 3 and 10 respectively (Kline, 2015).

T-test analysis was carried out to examine the differences between boys and girls in terms of study variables. In addition, a correlation matrix is presented to understand the nature of the relationship among study variables. Correlation matrices were crated separately for girls and boys to see if there was a significant difference between girls and boys (Alarid et al., 2000; Chapple et al., 2005). Afterward, stepwise multiple regression (OLS) or statistical multiple regression analysis was used to understand the extent of the relationship between ASB and other study variables.

GST argues that the removal of positive stimuli can add pressure on the individual. However, one can argue that introduction of positive stimuli can be used to control the pressure of negative stimuli (Agnew, 1992; Broidy, 2001; Carson, 2007). Therefore, this study tried to use the school, family, and environment-neighborhood triangle as control variables. There were a few usable environmental variables in terms of response rates. These were 'the quality of neighborhood offers,' 'involving in organized activities, and 'if the adolescents were willing to live in the same city after they finished their education' considered as neighborhood-level control variables. Neighborhood offers were not used because there was not enough information if these offers were used by study subjects. Involvement in organized activities could not be used because of the very low alpha level (α=.35). Factor analysis of these questions showed that organized activities give 3 factors, but the alpha level within their factors was even very low. The other two variables were not associated with ASB. Therefore, this study employed just family relations and school well-being as control variables.

One must bear in mind that stepwise multiple regression is often used in studies that are exploratory. However, some studies used this type of technic when testing a criminological theory (Zavala, 2018). First, ASB was regressed on negative stimuli variables such as *bullying*, *hate speech, sexual harassment*, *depression*, and *pressure.* In the second phase, besides negative stimuli variables, positive control variables such as *family relations* and *school well-being are* added to the equation. In the third phase, demographic variables (*gender, years of schooling-age, parental education, economic status, religiosity*), and other control measures (*smoking* and *urban)* were added to the equation; each independent variable was put in the analysis in its group. In the third phase, regression analysis showed that all independent variables, except for bullying, were associated with the dependent variable. During stepwise regression analysis, variance inflation factors (VIF) were checked to secure multicollinearity issues (Field, 2013; Mertler et al., 2021). In addition to OLS, robust regression analysis was carried out for the third-final model. Robust regression is an alternative to least squares regression when data are contaminated with outliers or influential

observations, and it can also be used to detect influential observations because "if in the presence of marked departures from model assumptions, little or no discrepancy between nominal and actual levels of significance occurs, then the statistical test is said to be robust concerning that particular violation" (Kennedy & Bush, 1985, p. 144). The third model was also run with a randomly selected 50% sample of data (N=13,326). By using Stata 15, a 50 % sample of the whole data was randomly extracted (n= 6,663). Both robust regression analysis and OLS regression analysis with 50% of data showed that there was not any difference between OLS and robust regression analysis, and the final model can count on a randomly selected 50 % of the data.

MEASURES

Dependent variable

Antisocial behavior (ASB)

Anti-social behavior is behavior that lacks consideration for others and may cause damage to society, whether intentionally or through negligence. The opposite of ASB is pro-social behavior, which is typical behavior that helps or benefits society (LaBrode, 2007). Patterson (1982) claims that antisocial behavior is a cluster of related behaviors, including temper tantrums, theft, aggression, noncompliance, lying, and violence. Other approaches to defining antisocial behavior include a kind of behavior that is directed against other people, their property, or breaks social rules (Garaigordobil, 2017; Garaigordobil & Maganto, 2016; Jalling et al., 2016). Antisocial behavior can take various forms (with different seriousness) such as rule-breaking, risky sexual practices, lying, unlawful substance use, and disorderly behavior such as theft, destruction, scam, engaging in aggression (either physical or verbal), and vandalism (Arce et al., 2011; Kazdin, 1987; Patterson, 1982; Pears et al., 2016; Torry & Billick, 2011). Another study (Molero Jurado et al., 2017) operationalized the Antisocial-Delinquent Behaviors Questionnaire (Seisdedos, 1995), which is comprised of 40 items that measure antisocial behaviors (trespassing, littering, etc.) and antisocial behaviors (taking drugs, theft, etc.).

The present study borrows the (LaBrode, 2007) definition and operationalization of 'antisocial behavior' as (Mahoney & Stattin, 2000) did in their study. These researchers used various behavioral items to construct the antisocial behavior variable.[v] As seen above, these authors employed variables that can be counted as elements of antisocial behavior. The current study embraces a similar approach and uses variables from UNGADATA Vestland 2021 package. [vi] In the Ungdata Vestland package, seventeen questions were asked under the title of the behavioral problem (atferdsproblem in Norwegian). Four questions related to violent offending are available in optional Ungdata questionnaires but were not included in the survey in high schools in Vestland County.[vii] Ungdata Vestland was collected for general planning and public health purposes and not designed purposefully for this analysis.[viii] The data holders anonymized the data set before Vestland County was given general-purpose access, and some variables, such as age, sexual orientation, and immigrant background, were suppressed.[ix]

The behavioral problems in the survey included: How many times during the past 12 months have you "Drunk so much that you've felt intoxicated," "Intentionally vandalized or broken windowpanes, bus seats, mailboxes," "Sprayed or tagged illegally on walls, trains, buses," "Not paid for a movie theater, sporting events, bus and train tickets, etc. when you should have," "Been gone a whole night without your parents knowing where you were," "Deliberately cheated on a test or submission you should get a grade on," "Had with your knife or other weapons in places where it is not allowed," "Taken goods from the store without paying," "Been in a fistfight," "Sold hashish or other illicit substances," "Used hashish/marijuana/cannabis," "Other drugs used," "Hacked, defrauded someone, or engaged in other online crime." These thirteen questions had a five-point frequency scale

that included “never,” “once,” “2-5 times,” “6-10 times,” and “11 times or more” with an alpha level (α=.76). These variables are averaged to create an index of “antisocial behavior” based on a factorial analysis (Eigen value=1).

Study Variables (negative stimuli variables)

General strain theory posits that adolescents who are exposed to negative stimuli possibly commit crimes to cope with these strains on them (Agnew, 1992).

Bullying

There is considerable evidence in the literature that being bullied can turn into antisocial behavior among youngsters. Turner (2013) suggested that people who were repeatedly bullied throughout childhood and adolescence were significantly more likely to go to prison than individuals who did not suffer repeated bullying. Additionally, Bender & Lösel (2011) claimed that bullying was a strong predictor of nearly all anti-social outcomes. Physical bullying was more predictive than verbal/indirect bullying in Germany. The bullying variable in this study is measured with two questions: “Are you sometimes teased, threatened, or frozen out by other young people at school or in your free time?” “Are you being bullied, threatened, or banned online?” These questions have six attributes of frequency points “Yes, several times a week,” “Yes, about once a week,” “Yes, approximately every 14 days,” “Yes, about once a month, “Seldom,” “Never.” These questions have an alpha value of (α=.66) and are averaged.

Depression (depressive symptoms)

This study used seven questions to measure the depression levels of adolescents. It acquired the seven items that measured depressive symptoms from a scale based on Hopkins Symptom Checklist 90 (Kandel & Davies, 1982). These questions involved “During the past week, have any of the following issues have affected you?” Response alternatives included “Felt that everything is a struggle,” “Had sleep problems,” “Felt unhappy, sad or depressed,” “Felt hopelessness about the future,” “Felt stiff or tense,” and “Worried too much about things,” “Felt lonely.” These questions were measured with a four-point extent as “Not been affected at all,” “Not been affected much,” “Been affected quite a lot,” and “Been affected a great deal.” The alpha score for this index was relatively high (α=.89), and the results were averaged. Kofler et al. (2011) state that early depressive symptoms predicted age-related variations in delinquent behavior significantly better than early delinquency predicted changes in depressive symptoms. In addition, Ozkan et al. (2019) studied the link between depression and delinquency. Their study revealed that depression was inconsistently related to crime in cross-sectional models but was a risk factor for both aggressive and income-related offenses in a longitudinal framework and that depression had an independent effect on delinquency which was not mediated by self-control. Even though there are not several studies that focus on the relationship between depression and ASB, there is enough evidence that depression among adolescents can lead to ASB.

Pressure

Adolescents were asked about the pressure they feel in several aspects of their lives. From a theoretical point of view, one can expect that the more pressure adolescents feel, the more likely they are to display antisocial behavior. The respondents were asked: “Do you feel pressure in your everyday life?” about several items such as “Pressure to look good or have a nice body,” “Pressure to do well at school,” “Pressure to do well in sports,” “Pressure to have lots of followers and likes on social media.” Answer alternatives included a five-point extent scale “No pressure,” “a little pressure,” “some pressure,” “a lot of pressure,” and “Very much pressure.” These four questions gave an alpha of (α=.77), and they were averaged.

Hate speech

Focus on hate speech has had an important place in criminology, especially in the past decade. Saha et al. (2019) studied the extent and effects of hate speech among college students in the United States. The study proposed that exposure to hate caused greater stress expression. Nevertheless, everyone exposed is not equally affected. Some show lower psychological endurance than others. In addition, Nadim and Fladmoe (2021) studied hate speech among high school students in Oslo city. These authors suggest that students with an ethnic minority background are more exposed to hate speech that targets skin color, ethnicity, nationality, and religion than students with an ethnic majority background are. This is especially true if the students also have a religious affiliation to a religion other than Christianity. Eleven percent of students with ethnic and religious minority backgrounds answered they were often exposed to this type of hate speech. The corresponding figure for students with an ethnic majority background was two percent.

The current study used six hate speech questions. Adolescents were asked: "Think about the last year, "Have you experienced receiving hateful or threatening comments...?" about "your skin color," "your ethnic background /country background," "the religion you belong to," "your gender," "a disability you have," "your sexual orientation," "your political opinion." The response alternatives included a five-point frequency scale: "Never, rarely, sometimes, often, very often." These questions gave an alpha level of (α=.75), and responses were averaged.

Sexual harassment

Sexual victimization could put considerable stress on adolescents and lead to antisocial behavior. Swanston et al. (2003) embraced a longitudinal research approach and investigated self-reported juvenile delinquency. These authors concluded that a history of child sexual abuse predicted self-reported criminal behavior and parents' rating of the youth's aggressiveness. The current study employed five questions by asking, "Have you been subjected to any of this in a way that you didn't like in the last 12 months?" "That someone against your will sexually touched you," "That someone hurtfully called you a whore, gay or other words with sexual content," "That someone spread negative sexual rumors about you," "That someone against your will shared photos or videos of you where you are naked or share," "That someone pressured or forced you into sexual intercourse or other sexual acts." Response alternatives included: "None, once, 2 to 5 times, and 6 times or more." These five questions resulted in an alpha score of (α=.74), and variables were averaged.

Mediating (positive stimuli-control variables)

Family relations (family control)

Both family structure, family care, and family control can have effects on adolescents' antisocial behavior. The family structure variable was excluded from the Vestland County dataset. A good deal of studies has found that poor parental management and disciplinary practices are associated with the development of delinquent behavior. Failure to set clear expectations for children's behavior, inconsistent discipline, excessively severe or aggressive discipline, and poor monitoring and supervision of children predict later delinquency (Capaldi & Patterson, 1996; Farrington, 1989; Hawkins et al., 1995; McCord, 1979). This present study used three questions related to family care and family control. The students were asked, "How well is it appropriate for your parents or guardians?" Response alternatives were: "They tend to know where I am and who I am within my spare time; they know most of the friends I'm within my free time, and they are very interested in my life." Response alternatives included "fits very well, fits quite well, fits quite poorly, and fits very

poorly." These three questions revealed an alpha score of (α=.72), and questions were averaged.

School relations (school well-being)

The current study employed five questions to capture adolescents' relationship with the school. The students were asked: "Do you agree or disagree with the following statements about how you feel at school?" Response alternatives were: "I enjoy being in my school; my teachers care about me; I feel like I fit in with the students at the school; I'm bored at school, and I often dread going to school." These three first questions were reverse coded. A four-point extent scale measured the questions: "completely agree, somewhat agree, somewhat disagree, and completely disagree." These five variables gave an alpha score of (α=.73), and these questions were averaged. Reinke & Herman (2002) proposed that the success of preventive and intervention programs for antisocial behavior hinges upon recognizing and modifying aspects of school climate, teacher/school personnel interactions with students, and school structure. Agnew et al. (2002) pointed out the fact that school attachment and school commitment were negatively associated with juvenile delinquency. In other words, adolescents with more school strain were more likely to involve in antisocial behavior.

Demographic (specification variables)

Gender

The gender of the respondents in this study was a dichotomous variable (male=0, female=1). GST posits that males and females perceive and experience strain differently. Compared to males, females are more likely to experience strains. Nevertheless, many of these strains for females are not conducive to crime, particularly other-directed crime. For example, Mazerolle (1998) proposes that males and females respond differently to different types of strain in terms of violent delinquent acts. Morash and Moon (2007) state that males are more likely than females to experience emotional and physical abuse by teachers, experience examination-related stress, and be associated with delinquent peers.

Years of Schooling (Age)

The class level of respondents measured years of schooling. High schools have three class levels (VG1, VG2, and VG3). Students begin high school when they are 16 years old and continue until they turn 19 years old. However, they can be in a different age group if they take classes over again or go back to school at an older age. For example, Mobarake (2015) stated that older adolescents are associated with more frequent adolescent antisocial behavior than younger adolescents in Iran. Molero Jurado et al. (2017) claim that the students in the fourth year scored significantly higher than those in the third year on antisocial behavior during the school year in Spain. In addition, the strain was more likely to lead to delinquency among older adolescents (the age range in this study is 12 to 16) (Agnew et al., 2002).

Religiosity

Religiosity was measured with a single question: "How much does religion mean to how you live your life daily?" "Religion means quite a lot to how I live in everyday life," "religion means little to how I live in everyday life," and "religion has no bearing on how I live my life." Attributes to this question were reverse coded. Gudlaugsdottir et al. (2004) found that adolescents who did not belong to a religious denomination were more likely than others to commit violence in Iceland. Kelly et al. (2015) employed a meta-analysis strategy and examined 62 relevant studies in four decades to understand the relationship between religiosity, delinquency, and drug use. These authors conclude that the results of this meta-analysis confirmed that religious involvement is negatively related to delinquent

behaviors. Salas-Wright et al. (2015) found that religiosity was an important protective factor against antisocial behavior in the lives of young African American women in urban public housing communities, but that the protective effect of religiosity varied in terms of the violent or nonviolent nature of the behavior in question.

The Economic Status of the Family

A single-item question measured the perceived economic status of adolescents in the current study. Respondents were asked: "Has your family had good or bad economy/finances in the last two years?" Response alternatives included: "We have been well off the whole time; We have generally been well off; We have neither been well off nor badly off; We have generally been badly off; We have been badly off the whole time." This measure was dichotomized (1=had 'always-mostly' good economy; 0=other).

There is a considerable amount of knowledge on the relationship between family economic status and antisocial behavior. Traditionally, it is asserted that low economic status results in higher volumes of antisocial behavior. According to strain theory, youths growing up in poverty may lack the legitimate means to achieve desired social and economic goals (Merton & Merton, 1968). For example, Savolainen et al. (2013) studied the variation in socioeconomic status and delinquency with a comparative approach to adolescents from 26 European countries. These authors conclude that the relationship between low parental socioeconomic status (SES) and offspring criminality may be stronger in advanced welfare states because of the reduced influence of ascribed characteristics on socioeconomic attainment in these countries. Bjerk (2007) states that the differences in serious criminal participation between adolescents from households in the upper parts of the income distribution and adolescents from households in the lower parts of the income distribution appear to be greater than the difference in serious criminal participation between the sexes. Agnew et al. (2008) claim that the relationship between economic problems and delinquency is nonlinear, such that only the experience of several economic problems is associated with higher delinquency, and the relationship between SES and economic problems is only moderate in size. Fergusson et al. (2004) studied the relationship between childhood economic disadvantage and delinquency in New Zealand. These scholars concluded that the higher rates of crime found amongst adolescents from socio-economically disadvantaged families reflect a life-course process in which adverse family, individual, school, and peer factors combine to increase individual susceptibility to crime. Out of the review of the literature, perhaps the type and extent of economic strain result in different types of coping mechanisms resulting in different types of delinquent acts.

Parental Education

One can argue that parents with higher education can benefit from their knowledge to raise their children accordingly. In other words, higher parental education may align parents' behavior in ways that reduces their children's tendency to engage in antisocial behavior. For example, Chalfin & Deza (2019) studied the intergenerational effects of parental education on delinquency. These researchers concluded that children of more educated parents are less likely to engage in crime. An additional year of combined parental education decreases assault by 3.3, shoplifting by 3.5, and property damage by 4.3 percent. Wright et al. (1999) studied the SES and delinquency among adolescents in the United States. These authors state that higher parental education had statistically significant negative effects on delinquency when the other positive mediating variables were included in the equation (i.e., variables Taste for Risk through Conventional Values). The current study used a single-item question to measure parental education level. Adolescents were asked, "Do your parents/guardians have an education from university or college?" The response alternatives included "Yes, both of them," "Yes, just one of them," and "No, none of them." This

variable was dichotomized as both parents have university degrees and others for the present study.

Control Variables

Smoking

Traditionally, smoking was not often employed in the context of GST. However, Cho et al. (2021) studied indirect cyber violence employing GST. These authors used smoking as a control variable and stated that it was not a significant predictor of indirect cyber violence. Audrain-McGovern et al. (2004) used evidence from a longitudinal cohort study of 9th to 12th graders and found that early adopters, compared with never smokers, were more novelty-seeking, with poorer academic performance, and more depressive symptoms, greater exposure to other smokers, and greater use of other substances. In addition, Harrison et al.(2020) found that recent smokers endorsed more emotional and behavioral symptoms, such as school problems, internalizing problems, inattention/hyperactivity, affect dysregulation, PTSD symptoms, and delinquent behavior. Likewise, Chang et al. (2005) stated that current smoking was associated with significantly increased odds of having mental health symptoms and substance use disorders, even after controlling for age and previous mental health treatment, in both boys and girls. Perhaps smoking can cause such emotional and physical pressure on adolescents that they cope with different behaviors. Several studies revealed the relationship between smoking habits and antisocial behavior. For example, Gudlaugsdottir et al. (2004) studied violent behavior among adolescents in Iceland. These researchers found that smoking and high levels of anger/aggression were substantially related to violent behavior. Tucker et al.(2008) found that pro-smoking peer and family influences were risk factors for future smoking throughout adolescence, and smoking was a predictor for poor grades but not delinquency. Ellickson et al. (2001)reported that smoking was related to various types of antisocial behaviors. Compared with nonsmokers, early smokers were at least three times more likely by grade 12 to regularly use tobacco and marijuana, use hard drugs, sell drugs, have multiple drug problems, drop out of school, and experience early pregnancy and parenthood (Ellickson et al., 2001). By using the Quebec Longitudinal Study Birth Cohort (Pagani et al., 2017; Pagani & Fitzpatrick, 2013). Pagani et al. (2017) studied prospective longitudinal associations between household smoking exposure in early childhood and antisocial behavior at 12 years of age. Parents of 1,035 children reported the presence of family smokers at seven follow-ups from 1.5 to 7.5 years. At the age of 12, children themselves reported five features of early antisocial behavior. After adjusting for confounders, each standard deviation increase in household smoke exposure was prospectively related to a 19% standard deviation unit increase in behavioral problems, a 13% standard deviation unit increase in reactive aggression, a 14% standard deviation unit increase in school discipline, an 11% standard deviation unit increase in proactive 10% standard deviation unit increase dropout risk (Pagani et al., 2017, p. 552). Besides, Pagani and Fitzpatrick (2013) used a prospective birth cohort design and estimated the relative contribution of long-term postnatal nicotine exposure from 17 to 86 months on children's subsequent antisocial behavior at the end of fourth grade. These authors concluded, compared with never-exposed children, that children who were exposed to continuous passive smoking scored higher on self-reported aggressive behavior and teacher-rated antisocial behavior in fourth grade. Similarly, children who were exposed to transient levels of passive smoking scored higher on aggressive and antisocial behavior (Pagani & Fitzpatrick, 2013). Smoking can arguably be both a result and a cause of pressure on young people. A review of the relevant literature suggests that both direct and indirect smoking may be causes of depressive symptoms in adolescents that may lead to antisocial behavior among schoolchildren. The current study used three types of questions to embrace the smoking habits of adolescents: "Do you smoke? do you use e-cigarettes? and do you use tobacco (snus)?" "Snus" is a type of tobacco package, which is placed under

the tongue in Norway. Response alternatives were "Have never smoked; have smoked before but have quit completely now; smoke less than once a week; smoke weekly, but not every day; smoke daily." These three items gave an alpha score of (α=.71), and three questions were averaged.

Urban (Bergen City area)

Antisocial behavior can vary in rural and urban areas among adolescents. For example, youths living in Oslo reported twice the rate of antisocial behaviors as youngsters living in less densely inhabited parts of Norway. Paige Harden et al. (2009) employed longitudinal data on the offspring of a nationwide representative sample of mothers (N = 4,886) in the US. There was no relation between urban areas (density) and mother-reported child behavior problems across ages 4–13 years, but adolescents living in areas of greater population density showed more self-reported antisocial behavior across 10–17 years. The current study used a dichotomous urban variable and coded if the subjects lived in the Bergen city area (1=Bergen, 0= Others) because Bergen city differed from other small municipalities in several parameters (i.e., population size and population density[x]) in Vestland County.

RESULTS (FINDINGS)

Demographic Statistics

Descriptive statistics of demographic variables show that nearly as many girls as boys responded to the survey. The percentage was 48.8 for boys and 51.2 for girls in this sample. For years in school or class-level, there was a steady decrease in the number of responses as the years of schooling increased. This might be because of two reasons: First, younger students could be more curious and excited about the survey compared to older ones. Second, the students who go to high schools in Norway have two options: vocational high school or study preparation. The students who take vocational education should have practice with companies when they go to third grade. Therefore, they rarely come to the school and have fewer opportunities to fill out the survey. The response rate at the class level was 4.9% for 1st graders, 35.7% for 2nd graders, and 23.4% for 3rd graders, respectively. Most of the students replied that they had a good or very good economy in the last two years (80.5%). In terms of parental education, a little lower than half of the respondents stated that both of their parents have university education (45.3%). However, parental education among survey respondents is well above both national and Vestland county levels, 34.9%, and 35.3%,[xi] respectively. Only one-third of the students said that religion has a bearing on how they live in everyday life (31,5%). Out of 41 municipalities, most adolescents in the sample lived in the Bergen municipality area (40.82%) (Table 1).

Gendering Study Variables

Student's t-test results revealed that boys and girls significantly differed from each other in terms of study variables. The independent samples t-test showed that the mean scores of the boys for ASB (t (11676) = 12.96, p<.001), bullying (t (12323) = 4.07, p<.001), smoking (t (12209= 14.29, p<.001), and school relations (t (12232= 12.49, p<.001) were higher than for girls. Besides, hate speech did not differ between boys and girls in the sample. Whereas girls have significantly differed from boys in terms of sexual harassment (t (12167) = -14.15, p<.001), pressure (t (11777) = -45.31, p<.001), depression (t (11758) = -35.20, p<.001), and family relations (t (12258) = -17.38, p<.001). The difference for girls was even much higher for pressure and depression. This result complies with the propositions of GST, which posits that even though young girls feel more pressure and depression than boys, girls seldom cope with ASB in return. There comes an issue for a new study to investigate the fact that girls thrive less than boys in their schools (see Table 2).

Table 1. Demographic Statistics (N=13,326)			
	Number	Percent	Cum. Percent
Gender			
Boys	6,397	48,82	48,82
Girls	6,707	51,18	100
Total	13,104	100	
Class (years of schooling)			
Hs1	5,427	40.91	40.91
Hs2	4,733	35,67	76,58
Hs3	3,107	23,42	100
Total	13,267	100	
Family economy			
have been well off the whole time	5,965	47,20	47,2
have generally been well off	4,210	33,31	80.52
have neither been well off nor badly off	1,917	15,17	95,69
have generally been badly off	411	3,25	98,94
have been badly off the whole time	134	1,06	100
Total	12,637	100	
Parental education (University)			
None	2,458	19,95	19,95
Just one	4,281	34,75	54,70
Both	5,582	45,3	100
Total	12,321	100	
Higher education			
Vestland County	180561	34,9	
Norway	1548029	35,3	
Municipality			
Bergen	5,440	40.82	40.82
Other	7,886	59,18	100
Total	13,326	100	
Religion			
has no bearing on how I live	8,222	68.51	68.51
has a bearing on how I live	3,780	31.49	100.00
Total	12,002	100	

Correlation Results

Pearson's correlation analysis was carried out separately for boys and girls (Alarid et al., 2000). Among study variables, the correlation between ASB and bullying (r (5491) = 0.28, p< .01), sexual harassment (r (5467) =0.39, p< .01), and smoking (r (5509) = 0.58, p< .01), were higher than the other variables for boys (Table 3). The relationship between ASB and independent variables differed little for girls in that family relation (r (5985) = 0.31, p< .01), smoking (r (6085) = 0.53, p< .01), sexual harassment (r (6039) = 0.43, p< .01), and depression (r (5945) = 0.20, p<.01) seemed to be more related to the dependent variables among other study variables (Table 4). Looking at both correlation tables, school well-being and depression were negatively and more significantly related to each other among other study variables both for girls (r (6094) = -0.54, p< .01 and boys (r (5438) = -0.50, p< .01) (Table 3 and Table 4).

Looking at the t-test results, both average depression and pressure levels were higher for girls and significantly differed between girls and boys. Therefore, it was useful to understand if girls differed through class levels in terms of depression and pressure they felt. Among female students, depression was persistent throughout the class level (F (2, 6188) =2.26, p=.1045), and mean pressure levels increased steadily through years of schooling. Nevertheless, a one-way analysis of variance (ANOVA) showed that group

Table 2. Comparison of Means of Major Variables for Male and Female Adolescents in the Sample

Variable	Min	Max	Boys Obs.	Boys Mean	Boys Std. Dev	Girls Obs	Girls Mean	Girls Std. Dev.	t-value*
ASB	1	5	5,551	1.36	.45	6,127	1.27	.29	12.96*
Bullying	1	6	5,884	1.32	.73	6,441	1.27	.63	4.07*
Hate speech	1	5	5,099	1.18	.43	5,866	1.18	.35	.41
Sexual harass.	1	4	5,820	1.15	.37	6,349	1.26	.46	-14.15*
Pressure	1	5	5,550	1.97	.78	6,229	2.70	.93	-45.31*
Depression	1	4	5,555	1.89	.70	6,205	2.37	.76	-35. 20*
Smoking	1	5	5,829	1.57	.87	6,382	1.37	.64	14.29*
School relation	1	4	5,860	3.09	.56	6,374	2.97	.59	12.49*
Family relation	1	4	5,896.	3.27	.57	6,364	3.43	.54	-17.38*

N= 13,326; * Pr (| T| > |t|) = .0000

Table 3. Pearson's Correlation Results of Major Variables for Male Students

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	ASB														
2	Bullying	0.2801*													
3	Hate Speech	0.2538*	0.3401*												
4	Sexual harass.	0.4107*	0.4393*	0.3760*											
5	Pressure	0.1730*	0.2213*	0.2183*	0.2840*										
6	Depression	0.2193*	0.2791*	0.2754*	0.2464*	0.4443*									
7	School relation	-0.2182*	-0.2731*	-0.2535*	-0.2061*	-0.2726*	-0.5056*								
8	Family relation	-0.2150*	-0.1676*	-0.1766*	-0.1346*	-0.0898*	-0.2605*	0.2780*							
9	Class level (age)	0.0825*	-0.0473*	-0.0144	-0.0208	0.0443*	0.0546*	-0.0615*	-0.0443*						
10	Parental education	0.0287	0.0536*	0.0393*	0.0133	-0.0300	0.0407*	-0.0555*	-0.0916*	-0.0255					
11	Economic status	-0.0885*	-0.1294*	-0.1515*	-0.0886*	-0.1133*	-0.2461*	0.1860*	0.2016*	0.0026	-0.1904*				
12	Religiosity	-0.0117	0.0628*	0.2357*	0.0467*	0.0817*	0.0303	-0.0268	0.0111	-0.0563*	0.0369*	-0.0729*			
13	Smoking	0.5812*	0.1627*	0.1510*	0.2415*	0.0440*	0.1699*	-0.1209*	-0.1272*	0.0946*	0.0953*	-0.0704*	-0.0451*		
14	Urban	0.0285	-0.0131	0.0490*	0.0149	0.0695*	0.0268	-0.0251	-0.0163	0.0674*	-0.1924*	0.0477*	-0.0405*	-0.0675*	

* Correlation is significant at the .01 level

Table 4. Pearson's Correlation Results of Major Variables for Female Students

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	ASB														
2	Bullying	0.1362*													
3	Hate Speech	0.1843*	0.2788*												
4	Sexual harass.	0.4388*	0.3155*	0.3632*											
5	Pressure	0.1610*	0.2006*	0.1776*	0.2417*										
6	Depression	0.2019*	0.2968*	0.2849*	0.3153*	0.4711*									
7	School relation	-0.1893*	-0.3146*	-0.2242*	-0.2283*	-0.2821*	-0.5478*								
8	Family relation	-0.2797*	-0.1483*	-0.2051*	-0.2102*	-0.0989*	-0.2689*	0.2467*							
9	Class level (age)	0.1170*	-0.0683*	-0.0583*	-0.0460*	0.0175	0.0141	-0.0199	-0.0055						
10	Parental education	0.0018	0.0546*	0.0371*	0.0221	-0.0336*	0.0651*	-0.0678*	-0.0831*	0.0033					
11	Economic status	-0.0486*	-0.1502*	-0.1538*	-0.1149*	-0.0585*	-0.2108*	0.1759*	0.2100*	0.0050	-0.2069*				
12	Religiosity	-0.1496*	0.0205	0.1655*	-0.0502*	-0.0238	-0.0282	0.0588*	0.0395*	-0.0372*	0.0249	-0.0378*			
13	Smoking	0.5334*	0.1256*	0.1354*	0.3918*	0.0799*	0.1891*	-0.1431*	-0.1895*	0.1025*	0.0745*	-0.0817*	-0.1065*		
14	Urban	0.0585*	-0.0165	0.0815*	0.0181	0.0366*	0.0422*	-0.0207	-0.0496*	0.0195	-0.1644*	0.0099	-0.0111	-0.0332*	

* Correlation is significant at the .01 level

Table 5. Average depression differences between girls and boys by years of schooling

	*VG1			VG2			VG3			Total			
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	F statistics
Male	1.85	0.69	2,416	1.90	0.71	2,025	1.96	0.70	1,097	1.89	0.70	5,538	(F (2, 5535) =8.36, p=.0002)
Girls	2.35	0.76	2,402	2.40	0.77	2,174	2.37	0.73	1,615	2.37	0.76	6,191	(F (2, 6188) =2.26, p=.1045)

*VG=High School

Table 6. Average pressure differences between girls and boys by years of schooling

	*VG1			VG2			VG3			Total			
	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	F statistics
Boys	1.95	0.78	2,419	1.97	0.79	2,020	2.05	0.76	1,093	1.97	0.78	5,532	(F (2, 5529) =6.39, p=.0017)
Girls	2.68	0.95	2,423	2.70	0.94	2,175	2.73	0.90	1,619	2.70	0.93	6,217	(F (2, 6214) =0.97, p=.3778)

*VG=High School

differences among classes were not significant for the female students at all (F (2, 6214) =0.97, p=.3778) (see Table 5 & Table 6). It was safe to conclude that class level (or age) was not important in the pressure and depression female students were exposed to.

OLS Regression Analysis

This study employed a forward stepwise regression analysis method. This method is stemmed from the prepositions of GST, which posits that negative stimuli can cause pressure on individuals. In return, adolescents can cope with that pressure with antisocial behavior. Therefore, ASB was firstly regressed on negative stimuli variables. As one can argue, bullying, pressure, depression, smoking, hate speech, and sexual harassment can be considered negative stimuli that probably cause pressure on an adolescent. The first step of the regression analysis showed that pressure did not have enough relationship with the ASB. A linear regression established that negative stimuli measures could statistically significantly predict ASB (F (5, 10116) = 356.43, p= .000). These negative stimuli variables accounted for nearly 15 % of the explained variability in ASB. Among negative stimuli variables, bullying, hate speech, sexual harassment, and depression were significant in predicting variation in ASB. However, sexual harassment had the highest standardized coefficient value (β=.32) to predict ASB (Table 7).

Second, this study employed just family relations and school well-being as positive stimuli variables. The second model significantly F (7, 9841) = 308.44, p= .000) predicted nearly 15% of the variation in ASB. Among negative stimuli variables, bullying and pressure were unrelated to ASB. Whereas hate speech, sexual harassment, and depression (negative) were significantly related to ASB. In the second model, depression lost its strength compared to the first model, but it turned out to be a negative predictor of ASB (p<.05). Family relations and school well-being significantly and negatively predicted ASB (Table 7).

In the third and final step, in addition to negative stimuli and control variables, demographic and other control variables were added to the analysis to see if there were specification effects of these demographic characteristics.

The final model was also significant F (14, 9353) =479.93, p= .000) in predicting 42% variability in ASB. Among negative stimuli variables, only bullying was not a significant predictor for ASB. Gender (female), parental education (both parents have university degrees), and religiosity were significantly and negatively associated with ASB. Whereas years of schooling and economic status, urban, and smoking were significantly and positively predicted ASB (see Table 7).

DISCUSSION AND CONCLUSIONS

This study used the propositions of general strain theory as a baseline and ran statistical analysis accordingly. The data was balanced in terms of the distributions of girls and boys (51.18% vs. 48.82%). Most of the students replied they had quite a good economy in the last two years (80.52%). Perhaps students in a developing country would respond differently to this question. Fewer than half of the respondents said both parents had a university education (45.30%), which was quite higher than both Vestland County and national level. Response level among high school students decreased as the class level increased. Demographic statistics revealed that religion played very little role in defining adolescents' everyday life (8.20%). The variation of antisocial behavior was considerably low among study subjects, with a mean score of 1.32 (min=1 and max=5).

Analysis of Research Questions

It was proposed that negative stimuli variables extracted from GST (bullying, hate speech, sexual harassment, pressure, and depression) would significantly predict antisocial behavior among adolescents. Even though *bullying* was a significant predictor of ASB (Bender &

Lösel, 2011) among negative stimuli variables in the first model, it became unrelated in the second and final model. Nevertheless, bullying can apply pressure on an adolescent. Therefore, it was safe to propose that bullying still was an important issue in terms of ASB among high school students. As a negative stimuli measure, *depression* was a positive predictor for ASB, but it turned out to be a negative and significant predictor for ASB in the second and final model when controlled with *family* and *school* relations. This result complied with previous research as depression was inconsistently related to delinquency (Ozkan et al., 2019). GST posits that when an adolescent feels negative pressure, he/she can sometimes cope with delinquency in return. Otherwise, an adolescent can find other coping mechanisms when he/she is subjected to negative stimuli. Instead of antisocial behavior, depression itself can be an outcome of negative stimuli. Therefore, one can expect that depression was negatively associated with ASB. Therefore, a future study can examine the possible coping mechanisms of students who were subjected to bullying and depression.

Among other study variables, *hate speech* (Saha et al., 2019), *sexual harassment* (Swanston et al., 2003), and *pressure* significantly predicted ASB. As the volume of these negative stimuli variables increased, so did that of ASB. These negative stimuli variables were significant even after controlling for positive stimuli variables and demographic variables. In terms of positive stimuli variables, school well-being and family relations significantly and negatively predicted ASB among adolescents. This result was valid even after introducing demographic variables into the analysis. These results were also following previous literature (Reinke & Herman, 2002; Capaldi & Patterson, 1996; Farrington, 1989; Agnew et al., 2002; Hawkins et al., 1995; McCord, 1979).

The relationship between demographic characteristics and antisocial behavior complied mostly with GST and previous research. Being a female high school student was negatively associated with ASB. Research on gender and strain shows that females are perhaps more likely than males to experience strains. However, many of these strains are not conducive to crime, particularly other-directed crime. The anger of females is more often accompanied by emotions such as depression, guilt, and anxiety (Agnew & Brezina, 2019). This research found that as the age of the student increased, so did ASB. This might be because, as an adolescent grows up, he/she can find more opportunities for self-determination. Since third-grade students rarely go to school because of occupational practice in companies, they can be exposed to other negative effects outside the school. This result also complies with previous literature (Mobarake, 2015; Molero Jurado et al., 2017). As the parents' educational level increased, ASB level decreased among high school students. This result was also suited to previous research (Chalfin & Deza, 2019; Wright et al., 1999). This can be because higher parental education results in aligning parents' behavior in ways that reduces their children's tendency to engage in antisocial behavior. Although employing religiosity to understand its effects on ASB is not so common compared to other traditional variables, there is ample research that reveals that religiosity is negatively associated with ASB (Gudlaugsdottir et al., 2004; Kelly et al., 2015; Salas-Wright et al., 2015). Haugstvedt & Sjøen (2021) used Ungdata in Oslo to study the potential of religious communities to prevent violent extremism. The students who were inclined to use violence were also open to talking to adults in religious organizations. These authors concluded that religious communities could be both consulted and collaborated more closely when designing preventive work. The current study showed that the students who said that religion had a strong meaning in their everyday life engaged less in ASB activities. Perhaps faith helps the socialization of adolescents, resulting in less depression and pressure. In addition, engaging in collective religious activities can form a type of social control that prevents students from being involved in ASB (Cretacci, 2003; Stark & Bainbridge, 2013).

The current study revealed that students who said they had a good or very good economy in the last two years were engaged in higher volumes of ASB compared to those who had a low economy. From a traditional criminological perspective, poverty is expected most likely to associate with delinquency, in other words, ASB. The nature of the dependent variable, ASB, was not seriously criminogenic in this study. Because violent acts such as murder, stabbing, rape, robbery, and injuring others were not included in this measure. There can be several reasons behind this finding. First, those with better financial means can easily access alcohol and drugs. Therefore, their level of ASB can be higher than others. Second, those with better financial means can probably engage in activities to have fun and boost adrenalin in their lives. Most of the shoplifting occurs not because adolescents are necessitous but because they need adrenalin or to display an act of courage to their peers. For example, Farmer and Dawson (2017) found that low-frequency shoplifters were also significantly more likely to endorse shoplifting for thrills, as suggested by the Self-Control theory (Gottfredson & Hirschi, 1990), or for other rewards (monetary benefit, admiration of peers, being cool), as proposed by Rational Choice theory (Cornish & Clarke, 1986). Likewise, Savolainen et al. (2013) used data from 26 European countries and concluded that the results from models focusing on substance use suggest that in nations with higher rates of poverty and income inequality, adolescents from low SES families are less likely to engage in heavy drinking and illicit drug use than their more affluent peers. Torgersen (2001) found that the students in Oslo who had an immigrant background (most probably with a low economy) were under-represented in minor deviance, with no differences in serious delinquency but overrepresented in violent delinquency. One can conclude that low socioeconomic status plays a little role in defining adolescents' ASB, whereas chronic poverty can predict violent offending. Since the current study had neither immigrant variable nor violent offending, that is out of this study's capacity to elaborate on these issues.

Among control variables, smoking was the most significant predictor of ASB. One can argue that a student who begins smoking can easily interact with other students with high ASB. As Differential Association Theory in criminology (Akers, 2017) posits, those smoking students can be influenced by others and can learn to do other forms of ASB, for example, using hashish.

Theoretical Implications

The findings of this study were mostly following the GST. This study showed that negative stimuli measures could change their nature (strength and direction) concerning ASB when controlled with other positive and demographic variables. This might be an issue of the context as it relates to the study population. In terms of contribution to theory development, it could be suggested that GST could be employed as a conceptual framework in other countries with different types of populations. Besides, low economic status was not associated with high levels of ASB. It can be because this study did not include violent types of ASB, and subjects with higher financial status probably had easier access to alcohol and drugs than those with poor finances. This result was associated with some other literature (Savolainen et al., 2013; Torgersen, 2001). There is still room for further research to study possible coping mechanisms of adolescents with low economy and high economy in terms of their attitudes towards ASB. In addition, even though girls are subjected to more pressure and depression than boys, girls rarely engage in ASB compared to boys. Therefore, the coping mechanisms of girls against negative stimuli should be studied. One can conclude that GST could be used to examine antisocial behavior in an economically developed country as well because most GST variables were significant in predicting ASB among adolescents.

Policy Implications

This study found that depression alone was significant, and bullying was not associated with ASB. This may be because, even though there were no multicollinearity issues among study

variables, depression itself can be one outcome of high negative stimuli. This study revealed, among negative stimuli variables, that smoking, hate speech, sexual harassment, and pressure were significant in predicting ASB among adolescents. As Nadim and Fladmoe (2021) articulated in their study, hate speech has been a serious matter for related actors to focus on among both secondary school and high school students. Besides, smoking was the most significant indicator of ASB. Therefore, it can especially be an early indicator for further antisocial behavior and peer pressure to engage in ASB. Therefore, it might be wise for families to closely watch their children's attitudes towards different forms of smoking (Table 7).

Both schools and families may focus on the elimination of hate speech, sexual harassment, and high levels of pressure among high school students. Even though average levels of hate speech (mean= 1.188) and sexual harassment (mean= 1.189) were low among negative stimuli variables predicting ASB, pressure has the highest average (mean= 2.362). T-test results of the current study revealed that girls were more subjected to depression, pressure, and sexual harassment than boys, and mean scores showed that boys suffered more hate speech than girls. Depression level was highest among 2nd-grade female students (Table 5), whereas there was a steady increase in pressure through years of schooling among female students (Table 6). Several female students feel different types of pressure so seriously that many apply for psychological help. These pressure-striving female students will just want to be everyday people.[xii] Eriksen et al. (2017) concluded that a considerable part of the gender differences in depressive disorders was related to the fact that girls more often experienced school stress and had a more problematic body image than boys. Using social media explains little about the gender differences in mental illness. The analysis also showed that school stress and body image perceptions were related to this type of ailment independently of each other (Eriksen et al., 2017). Therefore, it could be wise for families and instructions to focus on female students to take preventive measures against their depression and pressure.

Among positive stimuli (control variables), *school well-being* and *family relations* were significant negative predictors of ASB. School well-being was also negatively associated with depression. Out of this study's findings, one can propose that building different cooperation mechanisms between families and schools can contribute to avoiding both ASB and depression among adolescents. Besides, policymakers could specifically focus on the Bergen city area because adolescents in this area tended to engage in more antisocial behaviors compared to those living in rural areas.

Implications for Future Studies

Even though girls feel more pressure, sexual harassment, and depression, they rarely cope with ASB in return. There is still a large gap in the literature examining girls' coping mechanisms against ASB compared to boys. Positive stimuli variables, school well-being, and family relations were significant to control ASB. Future studies could use these variables to see if these measures were valid for other populations in various countries on different continents. In addition, victimization among high school students based on Ungdata is rarely studied. Therefore, future studies may focus on correlates and determinants of several types of victimization (violent crime victimization, sexual harassment, hate speech, bullying).

Limitations

The cross-sectional aspect of the data limits us to make concrete causal relationships between dependent and independent variables (i.e., the temporal order of events could be a matter to remember). For example, antisocial behavior can lead to depressive symptoms and pressure among adolescents, as these variables lead to ASB in return. Second, Ungdata in Vestland county did not employ a random sampling, but the questionnaire was sent to all schools possible. Third, since the survey was directed at the schools, it coincided with Covid-19

prevention measures in the county; therefore, even though the sample captured 55.8% of the whole population, we cannot estimate how representative the data is.

Table 7. Summary of OLS regression analysis for the independent variables predicting ASB

	Model 1				Model 2				Model 3			
	B	**SE**	**t**	**β**	**B**	**SE**	**t**	**β**	**B**	**SE**	**t**	**β**
(Constant)	.166	.006	23.96		.527	.022	23.28		.171	.025	6.75	
Bullying	.025	.006	3.71	.037***	.010	.007	1.54	.015	-.001	.006	-0.09	-.001
Depression	.011	.003	3.25	.036**	-.007	.003	-2.08	-.026*	-.009	.003	-2.97	-.032**
Hate speech	.065	.009	6.59	.067***	.038	.009	3.91	.040***	.040	.008	4.48	.041***
Sexual harassment	.309	.010	30.89	.327***	.299	.009	30.01	.316***	.185	.008	20.71	.194***
Pressure	-.002	.002	-0.93	-.010	.0025	.002	0.94	.0102	.019	.002	8.19	.080***
School relation					-.023	.004	-5.33	-.059***	-.021	.003	-5.52	-.053***
Family relation					-.072	.004	-17.98	-.173***	-.047	.003	-13.35	-.113***
Gender (female)									-.042	.004	-10.21	-.091***
Years in school (age)									.021	.002	9.12	.073***
Parental education									-.013	.003	-3.62	-.029***
Economic status									.011	.004	2.31	.019*
Religiosity									-.017	.002	-6.74	-.054***
Smoking									.148	.002	56.44	.480***
Urban (Bergen)									.019	.003	5.20	.042***
R^2 (R^2adj,)	0.1498 (0.1494)				0.1799(0.1793)				0.4181 (0.4172)			
F	F (5, 10116) = 356.43***				F (7, 9841) = 308.44***				F (14, 9353) =479.93***			

*p<.05, **p<.01, ***p<.001

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[i] (Store norske leksikon, Vestland) https://snl.no/Vestland
[ii] (Ungdatasenteret) https://www.ungdata.no/english/
[iii] (see https://www.ungdata.no/ for more information).
[iv] Table 05363: Pupils in upper secondary education, by region, contents, and year (2021, Statistics Norway) https://www.ssb.no/en/statbank/table/05363/tableViewLayout1/
[v] For example, they used: "Have you taken something from a store
without paying for it?" "Have you drunk so much beer, liquor, or wine that you have become drunk?", "Have you destroyed things (e.g., windows, motor vehicles), have you taken something from a store without paying for it?", "Have you drunk so much beer, liquor, or wine that you have become drunk?" "Have you been caught by the police?" ," Have you destroyed things (e.g., windows, motor vehicles, telephones booths, benches, yards, etc.)?", "Have you taken money from home that was not your own?", "Have you by yourself or with others ganged up on another student?", ''Have you taken part in a fight?''
[vi] The data set is based on an Ungdata survey, conducted by NOVA in cooperation with the Regional Competence Centers for Alcohol and Drugs (KoRus). Ungdata is financed over the National Budget through grants from the Norwegian Directorate of Health. NOVA is not responsible for analyses or interpretation of the results.
[vii] These were: "Used threats to get money or objects from someone else; Broke in to steal something; Stolen money or stuff from someone you know; Been in contact with the police because of something wrong you've done." Therefore, these variables of violent offending were not available out of the data.
[viii] Ungdata is a comprehensive source of information on adolescent health and well-being at the municipal and national levels. It is among other things used in municipal planning and development work related to public health and preventive measures aimed at young people. Ungdata covers various aspects of young people's lives, e.g., relationships with parents and friends, leisure activities, health issues, local environment, well-being, and school issues. The surveys also include questions about tobacco and drug use and participation in various forms of antisocial behavior such as violence and bullying.
[ix] The author has used this general-purpose access in his capacity as visiting fellow in Vestland County's Department of Strategic Development and Digitalization.
[x] Bergen city is one of the five urban areas in Norway according to Norwegian Sentral Statistics Bureau (https://www.ssb.no/en/befolkning/folketall/statistikk/tettsteders-befolkning-og-areal)
[xi] Table (08921-Vestland county in 2020): Persons 16 years and over, by region, age, level of education, statistical variable, year, and sex (Statistics Norway.)
[xii](see, Kan vi ikke bare være hverdagsmennesker?)
https://www.vg.no/nyheter/meninger/i/qLVJxm/kan-vi-ikke-bare-vaere-hverdagsmennesker