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The Impact of Social Networks on Juvenile Delinquency

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THE IMPACT OF SOCIAL NETWORKS ON JUVENILE DELINQUENCY

A Thesis

by

LESLY ELIZABETH HERNANDEZ

Submitted to Texas A&M International University
in partial fulfillment of the requirements
for the degree of

MASTER OF SCIENCE

May 2021

Major Subject: Criminal Justice

The Impact of Social Networks on Juvenile Delinquency

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Approved as to style and content by:

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ABSTRACT

The Impact of Social Networks on Juvenile Delinquency (May 2021)

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Dr. Marcus Antonius Ynalvez

This thesis examines the role of social networks as an interaction factor in the relationship between negative emotions and juvenile delinquency by applying General Strain theory to study the differences in non-violent delinquency, violent delinquency, and status offenses among Hispanic females. Data were acquired from the Drug Use and Cultural Factors Among Hispanic Adolescents and Emerging Adults, Los Angeles (2006-2016), a restricted longitudinal survey file from Inter-University Consortium for Political and Social Research (ICPSR). This study is a cross-sectional secondary data analysis in which the population studied is composed of Hispanic female ranging in ages from 14 to 17. Two types of quantitative analyses were performed: (1) linear regression analysis and (2) binary logistic regressions. Minority status strain in the form of acculturation was the only predictor of depression. Moreover, social networks proved to have an impact as an interaction factor in the relationship between depression and juvenile delinquency but only for status delinquency (lifetime cigarette use). Social networks did not have an impact in non-violent delinquency, violent delinquency, and status delinquency (lifetime alcohol use). Further research should consider looking into other aspects of social networks as an interaction factor in the relationship between negative emotions and juvenile delinquency.

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INTRODUCTION

Strain, whether institutional or personal, has been a factor discussed by sociologists to explain crime since Emile Durkheim introduced the notion of anomie or strain in 1893 (Roh, 2017). Durkheim noted that strain, or more precisely anomie, occurred when there was a disruption in social norms (Williams & McShane, 2004). Such disruption, which could be caused when societies transition from agrarian to industrial, produces a state of normlessness where individuals do not know what to expect from each other. Normlessness can lead to deviant or criminal behavior (Williams & McShane, 2004). Robert Merton (1938) then recalibrated the idea of strain when he discussed crime as the result of one's failure to attain culturally valued goals through legitimate means. Although there have been several sociologists and criminologists that have used the notion of strain to help explain crime and/or delinquency (see Durkheim, 1893; Merton, 1938; Messner & Rosenfeld, 1994), they focused on strain at the macro-level. General strain theory (GST), proposed by Robert Agnew in 1992, introduced the notion that strain could also be personal and, thus, introduced a micro-level application of strain. He also introduced the notion that an individual can experience strain from blocked opportunities and/or negative life events/circumstances. That is, an individual can experience strain when he/she is trying to avoid negative or stressful situations (Agnew, 1992).

GST is one of several criminological theories that have been used to explain juvenile delinquency. GST gained popularity in the 1990s, and its prevalence as an explanatory argument for delinquency stems from the notion, perhaps simplistic notion, that general strain or stressors in an individual's life can serve as primary "push" factors in one's decision to engage in illegal behavior (Agnew, 1992). Agnew also introduced the notion that strain can occur when an individual is trying to avoid negative life situations (e.g., poor grades, disciplinary action from

parents, poverty, parental neglect, abusive romantic relationships, and discrimination). While GST is mainly used to explain crime rates based on the general population, new applications of the theory are used by researchers to discuss differences in delinquency according to one's age, gender, and race/ethnicity (Cullen, Wright, & Blevins, 2006). Crime rate differences between different populations are attributed to the strains experienced and how particular groups such as police officers, street youth, Chinese youth, and even white-collar offenders, respond to strains (Cullen, Wright, & Blevins, 2006). Although many studies have investigated differences in population, very few studies have looked at strain experienced by Hispanics, and specifically Hispanic females. Thus, this study seeks to expand the breadth of knowledge on the extant topic.

The objective of this research is to: (1) apply GST to study differences in delinquency among Hispanic females and (2) examine the role of social networks as an interaction factor in the relationship between negative emotions and juvenile delinquency. This thesis focuses on examining whether social networks interacting with negative emotions impact or influence juvenile delinquency (non-violent delinquency, violent delinquency, and status offenses). The core hypothesis of this study is that social networks will have an interaction effect on the relationship between negative emotions and juvenile delinquency. The interaction effect of social networks can lead to extreme delinquency or can act as a barrier and dissuade adolescents from engaging in delinquency depending on the type of role modeling. The results of this research will expand literature on the influence that social networks have on delinquency, especially for Hispanic females, since there is limited knowledge on this topic.

This study is a partial replication of Moon and Morash's (2017) study on delinquency in Hispanic females as it also intends to examine the importance of some cultural differences Hispanic females might be affected by, when explaining delinquency such as acculturation. They

used moderating/interacting conditions in the relationship between negative emotions and delinquency. Although some of the factors were not statistically significant, they recommended future studies use other moderating/interacting factors such as delinquent peer association and criminal skills/resources. Other recommendations included separating violent, property, and status offending when defining delinquency, including more or different moderating/interacting factors, and including other dimensions of negative emotions. This study is drawn from Moon and Morash's (2017) recommendations, as well as different measures of the elements of GST (i.e., depression and delinquency) (Agnew, 1992). Additionally, as mentioned previously, Moon and Morash (2017) recommended using peer association as a moderating/interacting factor, but social networks are believed to be a better construct; thus, this study tests the interaction effect of social networks. Social networks were chosen as a construct because of their focus on relationships and their impact on behaviors. Moreover, more detailed definitions were used to measure theoretical constructs. Ideas from Jennings, Piquero, Gover, and Perez (2009) were also used because they too use GST to study gender differences between Hispanics in delinquency. Accordingly, this study was built on the GST model.

LITERATURE REVIEW

General Strain Theory (GST): An Overview

GST, by Robert Agnew (1992), is a micro-level theory used to explain delinquency. As mentioned, Agnew was one of the first to adapt strain theory to an individual's social environment. The theory focuses on negative relationships and how the pressure they exert can lead to delinquency. He states that there are strains or stressors that increase the probability of engaging in crime (Cullen, Wright, & Blevins, 2006). Stressors include: (1) the failure to achieve positively valued goals (e.g., poverty and bad reputation or status), (2) the removal of positively valued stimuli (e.g., loss of a romantic partner), and (3) the presentation of negatively valued stimuli (e.g., verbal and physical abuse) (Cullen, Wright, & Blevins, 2006). GST states that strains lead to negative emotions, and those emotions stir feelings of wanting to release such strain in the form of delinquency. Researchers have concluded that parental rejection, child abuse and neglect, low grades, and homelessness increase the likelihood of engaging in crime (Cullen, Wright, & Blevins, 2006).

While GST focuses on the failure to achieve positively valued goals and the role of the frustration resulting from that failure in the involvement of crime, one of the weaknesses of GST is that it considers strains as a given and does not explore the sources of strain coming from the social structure (Frailing & Harper, 2013). Moreover, although GST has helped researchers explain the differences in crime rates between different groups, it does not take in account interaction factors that can affect the relationship between strains and juvenile delinquency (Cullen, Wright, & Blevins, 2006).

Elements of GST

Strains. GST has three important elements: strains, emotions, and delinquency. General

strain theorists have defined the construct strain as the response to the obstruction of positively valued goals, removal of positively valued stimuli, and/or the introduction of negative stimuli resulting in a wide range of negative emotions (Ellwanger, 2006). To measure the blockage of positively valued goals, theorists have used the gap between aspirations and expectations, the disconnection between expectations and actual achievements, and the difference between fair outcomes and actual outcomes. Furthermore, the representation of negative stimuli and the removal of positively valued goals ranges from the loss of a relative, emotional and physical abuse experienced, and noxious neighborhood conditions (Ellwanger, 2006).

Strains in earlier research were defined as a composite measure of negative relations with adults, school/peer hassles, neighborhood problems, and negative life events (Mazerolle & Maahs, 2000). On the other hand, Piquero and Sealock (2004) based their definition of strain on the introduction of noxious stimuli, the removal of positive stimuli, or a discrepancy between expected and actual outcomes. They measured strain as an additive variable based on emotional and physical abuse experienced by the individual. The latest research on GST used seven different factors to define strain which were as follows: family conflict, parent emotional and physical punishment, teacher's emotional and physical punishment, examination-related strain, financial strain, gender discrimination, and victimization strain (Moon & Morash, 2017).

Some scholars found significant gender differences when examining strains and its relationship with delinquency (Mazerolle, 1998; Piquero & Sealock, 2004; Moon & Morash, 2017). Mazerolle (1998), for instance, discovered that negative life events predicted delinquency for males but not for females. Moreover, Piquero and Sealock (2004) revealed that there was a positive relationship between strain and delinquency. That is, respondents with more strain reported more delinquent activity such as property offending or interpersonal aggression,

compared to other respondents (Piquero & Sealock, 2004). Additionally, Moon and Morash (2017) when using seven factors to define strain, found that parental punishment, examination-related strain, financial strain, and criminal victimization are importantly associated with male violent behaviors or property delinquency. Gender discrimination and family conflict were the only two statistically significant strains associated to female violent behaviors or status delinquency (Moon & Morash, 2017).

Adolescents that are part of ethnic minority groups tend to have the burden of additional stressors related to their social, cultural, and structural positions in the United States (Copeland-Linder, Lambert, Chen, & Ialongo, 2011). Minority adolescents are faced with stressors such as poverty, racial/ethnic discrimination, community violence, and neighborhood disorder. Although some adolescents might succumb to the negative effects of these strains, others are resilient due to factors that aid them with coping effectively (Copeland-Linder, Lambert, Chen, & Ialongo, 2011). Ngo and Le (2007) mention that life stressors such as exposure to violence, changes in residence, illness, poverty, or death of a family member can result in internalizing and/or externalizing symptoms such as depression, anxiety, substance abuse and delinquency. Moreover, it is important to note that immigrant adolescents go through acculturation stressors such as racial discrimination, prejudice, and language barriers (Ngo & Le, 2007).

Negative Emotions. Many studies have shown that emotions are connected to the relationship between strains and delinquency. Studies have concluded that emotions, more specifically negative emotions, are the mediator between strains and delinquency (Agnew, 1992; Piquero & Sealock, 2004; Moon & Morash, 2017). An early research conducted by Larson and Asmussen, defined emotions as classical emotional states, social emotions, and arousal states (Colten & Gore, 1991). For instance, classical emotional states were anger and happiness. Social

emotions were defined as feeling hurt, worried, accepted, and awkward. Moreover, arousal states were feeling calm, excited, tense, and bored (Colten & Gore, 1991). As per Agnew (1992), juveniles are pressured into delinquency due to the negative effective states such as anger that result from negative relationships. Some negative emotions included disappointment, depression, and fear (Ellwanger, 2006). Anger is the most important type of negative emotion because it gives rise to a yearning for retaliation and revenge (Ellwanger, 2006). Similarly, other researchers defined negative emotions as anger and depression (Piquero & Sealock, 2004; Moon & Morash, 2017). Uncontrollable outbursts of temper, urges to beat or harm someone, and urges to break things were used to define anger whereas experiencing sadness, depression, and feeling worthless were used to measure depression.

According to research, there have been two major models of emotions: organismic model and interactional model (Ritzer & Stepnisky, 2018). The organismic model states that some emotions are universally shared, and emotions are viewed as a biological process. As per this model, emotions are unshaped by social factors and are guided by instinct. Furthermore, emotions are passive and cannot be managed by people experiencing them. Researchers stated that the universal primary emotions are fear, anger, happiness and sadness (Ritzer & Stepnisky, 2018).

On the other hand, the interactional model of emotions states that social factors affect emotions before and after, but also during, the experience of emotions (Ritzer & Stepnisky, 2018). Moreover, this model mentions that there is possibly a component of emotions that is biological. Based on this, it is believed that people do not passively respond to emotions; instead, they actively engage with emotions as they are expressed. Furthermore, the experience and

expression of emotions vary depending on social context and cultural rules (Ritzer & Stepnisky, 2018).

Given these points, results of negative emotions unrelated to juvenile delinquency showed that adolescents have higher rates of negative emotions than pre-adolescents. The most prominent emotions were anger, worry, and hurt. In addition, boys reported more arousal states (e.g., anger and boredom), while girls reported more social emotions (e.g., irritability, awkwardness, and worry) (Colten & Gore, 1991). Earlier research discovered that anger created a disposition for delinquency (Agnew, 1992). As researchers conducted more studies, they realized that depression also had an impact on delinquency (Piquero & Sealock, 2004). For example, Piquero and Sealock (2004) realized that individuals with a higher number of strains exhibited higher levels of anger; this was found for both genders. Depression, on the other hand, was different depending on the gender of the individual. Strains had a positive relationship with depression for males, but it was insignificant for females. Additionally, anger had a direct effect on property offending and interpersonal aggression, while depression did not have any relationship to property offending (Piquero & Sealock, 2004). Conversely, Moon and Morash (2017) found that negative emotions did not significantly mediate the relationship between strains and delinquency on their own. They found that there had to be an interaction factor to make the relationship significant. When there was an interaction variable included in this connection, negative emotions were significant (Moon & Morash, 2017).

Juvenile Delinquency. Juvenile delinquency mainly consists of minor forms of criminal behavior (e.g., shoplifting, bicycle theft, vending machine theft, vandalism, traffic offenses, and burglary) although it may also include more serious behaviors (e.g., sexual offenses, fights, and physical abuse) (Angenent & De Man, 1996). Other researchers have defined delinquent

behaviors more elaborately (Miller, Melnick, Barnes, Sabo, & Farrell, 2007; Hoffmann & Dufur, 2018). For example, Miller et al. (2007) used a delinquency scale divided into two subscales measuring minor delinquency and major delinquency. Minor delinquency dealt with academic cheating, cursing, fighting with family members, lying, binge drinking, violating curfew, sexual activity, and truancy. Whereas, the major delinquency subscale measured physical assault, drug use, vandalism, theft, breaking and entering, and unauthorized financial transactions (Miller et al., 2007). Furthermore, a more recent study, conducted by Hoffmann and Dufur (2018) defined juvenile delinquency as property and violent offenses. Property offenses involved graffiti, shoplifting, stealing, car theft, and selling drugs, while violent offenses involved serious physical fighting, hurting an individual, threatening someone with a weapon, and being part of a gang fight (Hoffmann & Dufur, 2018). These three studies seem to capture the whole definition of juvenile delinquency rather than other studies that only focus on alcohol and drug abuse (Eccles, & Barber, 1999; Eitle, Turner, & Eitle, 2003; Thorlindsson, & Bernburg, 2006; Sokol-Katz, Kelley, Basinger-Fleischman, & Braddock, 2006; Kwan, Bobko, Faulkner, Donnelly, & Cairney, 2014).

Studies on GST have measured delinquency differently (Piquero & Sealock, 2004; Lin, Cochran, & Mieczkowski, 2011; Moon & Morash, 2017). Piquero and Sealock (2004) defined delinquency as interpersonal aggression and property offending. They failed to cover violent delinquency. Similarly, Lin, Cochran, and Mieczkowski (2011) defined delinquency as violent/property crime and drug use. Compared to previous studies, Moon and Morash's (2017) definition of delinquency captured more types of delinquency such as violent, property, and status delinquency. Although all the studies found the relationship between strain and

delinquency statistically significant, they mention that a better definition for delinquency should be implemented.

Research shows that delinquent behaviors peak around adolescent years and decline as an individual gets older (Steffensmeier, Allan, Harer, & Streifel, 1989; Blumstein, 1995; Leal & Mier, 2017). Steffensmeier, Allan, Harer, and Streifel (1989) noted that Elliott's National Youth Survey (NYS) data showed a peak age of fifteen to sixteen years old for gang fights, while the FBI's Uniform Crime Report (UCR) showed a peak age of seventeen to eighteen years old for rape and simple assaults. The more serious aggravated assaults had a peak age of seventeen to twenty-one years old. Moreover, the National Crime Survey (NCS) found that one third of robbers were perceived to be under the age of twenty which was more than those perceived to be thirty or older. When it came to rape and assault, the perpetrators were thought to be over the age of thirty (Steffensmeier, Allan, Harer, & Streifel, 1989). Steffensmeier, Allan, Harer, and Streifel (1989) also found that perpetrators of property crimes are usually younger individuals than those who commit person crimes, public-order offenses, and substance abuse. Moreover, Blumstein (1995) viewed age as one of the most important factors affecting crime rates. His study displayed a peak age of seventeen for both robbery and burglary as well as a peak age of eighteen for murder (Blumstein, 1995). More recently Leal and Mier (2017) found that every type of crime they tested had higher results for juveniles than adults. Juveniles seemed to use marijuana more than adults, yet adults used cocaine and heroin more than juveniles. Adolescents who used drugs also had a higher probability of being involved in a robbery (Leal & Mier, 2017). The studies previously mentioned provided a significant amount of data which exhibits that younger individuals tend to commit more crimes.

GST and Gender – Important Findings

Literature demonstrates that males self-report more delinquency than females (Levin, Smith, Caldwell, & Kimbrough, 1995; Paetsch & Bertrand, 1997; Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2007). This is substantiated by Levin, Smith, Caldwell, and Kimbrough's (1995) study which revealed that females had lower rates of participation in violent and non-violent delinquency than males. Later research found that nearly 40 percent of male students reported moderate/high level of delinquency and about 24 percent of females reported moderate/high level of delinquency (Paetsch & Bertrand, 1997). Not only are males more inclined to violent behaviors than their female counterparts as found by previous researchers, additionally Barnes et al. (2007) findings suggest that males are also more likely to engage in maladaptive behaviors such as binge drinking. To further demonstrate that males commit more delinquent behaviors than female, arrest numbers can be compared. For example, UCR statistics for 2015 showed that overall, 6,067,584 males and 2,238,335 females were arrested that year (i.e., 73.1% males, 26.9% females) (U.S. Department of Justice, 2016). Furthermore, 79.9% of males were arrested for violent crimes and 61.7% were arrested for property crimes. Even when adolescents' rates were compared, statistics showed that 501,480 males under the age of 18 were arrested (U.S. Department of Justice, 2016), while 207,853 females under the age of 18 were arrested that year (U.S. Department of Justice, 2016). Both self-report and arrest statistics show that males engage in delinquent behaviors more than their female counterparts.

The first research to mention a possibility that GST could be used to describe the differences in delinquency due to gender was conducted by Broidy and Agnew (1997). Broidy and Agnew (1997) found that the type of strain explained gender differences in crime. Stressors related to females were discrimination, relationship problems with romantic partners, family, and

friends, high expectations from family members, and restrictive behavior. On the other hand, males experience different strains from females such as financial strain and conflictive relationships with peers. This shows how males are more concerned with material success and extrinsic achievements, while females care more about maintaining close relationships (Broidy & Agnew, 1997).

According to Broidy and Agnew (1997), not only are the types of strains experienced by males and females different, but their emotional response to those stressors may also differ. As previously mentioned, GST suggests negative emotions as a response to strains, result in crime (Agnew, 1992). Negative emotions are the linkage between strain and crime. Strain can lead to depression, anger, and frustration. These emotions create pressure on an individual, and crime can be an option to alleviate the pressure (Agnew, 1992). Based on prior research, it was noted that males and females report similar levels of anger as a result of strains. Although, females tend to respond with a mixture of negative emotions such as anger and depression (Broidy & Agnew, 1997). Even though males and females respond to strain with anger, their involvement in delinquency differs. As a result of strain and anger, males will engage in serious violent and property crime, while females will engage in self-destructive types of deviance such as substance abuse (Broidy & Agnew, 1997).

Moreover, Broidy and Agnew (1997) relate the differences in the response to strain to moderating/interaction factors that weaken or enhance the relationship of strains and delinquency. The moderating/interaction factors include coping resources, coping skills, social support, criminal beliefs, constraints to delinquent coping, and exposure to criminals. Based on this, females are thought to refrain from serious delinquency due to gender-expectations from family and friends, parental control and supervision, and restriction of association with

delinquent peers. Conversely, males are more likely to associate with delinquent peers and have less parental supervision which is related to why they engage in serious delinquency. The differences in delinquency due to gender can be attributed to the differences in coping, social support, social control, and disposition to engage in crime (Broidy & Agnew, 1997).

Different researchers have used GST to study gender differences in crime. A more recent study tried explaining why there are gender differences in delinquent behaviors (Moon & Morash, 2017). Moon and Morash's (2017) study found that different types of strains (e.g., financial strain, gender discrimination, interpersonal strain) would result in different forms of delinquency, based on a person's gender. Their study showed that strains impacted male and females differently and resulted in violent, property, or status delinquency (Moon & Morash, 2017). It was found that parental punishment, examination-related strain, financial strain, and criminal victimization are importantly statistically associated with male violent or property delinquency. On the other hand, the two significant strains associated to violent or status delinquency were gender discrimination and family conflict for females (Moon & Morash, 2017). The studies mentioned in this section demonstrate that there are differences in juvenile delinquency based on gender where males report more delinquent behaviors as well as violent delinquency than females.

Hispanic Females and GST

The research on racial/ethnic differences in juvenile delinquency is scarce. Peeples and Loeber (1994) mentioned that early studies showed no ethnic differences in juvenile delinquency, but a study conducted in 1980 found a higher percentage of African Americans that were high-frequency offenders and would commit more predatory crimes against other individuals when compared to Whites. Peeples and Loeber (1994) noticed that African American

boys reported serious forms of delinquency, twice as much as White boys (10.1 % to 4.9%, respectively). Moreover, the number of African American boys that engaged in frequent, serious delinquent acts was six times more than that of White boys (12.6% to 2%, respectively). They also found that delinquent behavior of African American boys was like that of White boys when they did not live in underclass neighborhoods (Peeples & Loeber, 1994). Similarly, McNulty and Bellair (2003) tried explaining the racial/ethnic differences in serious juvenile delinquency. The study revealed that African Americans, Hispanics, and Native Americans reported higher levels of involvement in serious violence than Whites. Asians were the only racial/ethnic group that reported lower levels of serious violence compared to Whites (McNulty & Bellair, 2003). When studying racial differences in juvenile delinquency it is noted that minorities such as Hispanics and African Americans show a higher percentage of involvement in delinquency.

An important research conducted by Jennings, Piquero, Gover, and Perez (2009) focused on Hispanic adolescents and replicated the study done by Broidy and Agnew (1997). The results showed that males reported engaging in interpersonal aggression and property offending more than females. They also found that females reported higher levels of depression and anger. Moreover, they showed similar findings to previous research in which different types of strain were related to different types of negative emotions. The research indicated that anger was significant in the effects of offending for both males and females, conversely depression was only significant on property offending. As for the interaction variables evidence showed that some factors helped explain differences in delinquency by gender (Jennings, Piquero, Gover, & Perez, 2009).

Social Networks

As previously mentioned, social networks will be used as an interaction variable between

negative emotions and juvenile delinquency based on Moon and Morash's (2017) recommendations and because of the main focus of social networks. Social networks theory focuses on relationships and how they exchange information as well as enable behavioral change. Social networks are defined as the net of social relationships that surround an individual (Glanz, Rimer, & Viswanath, 2008). Social networks theory focuses on linkages between people. The connection between people may or may not provide social support and may have other functions. Social networks can be divided into two: (1) characteristics of a relationship of one individual and other individuals in his/her network which is also known as egocentric and (2) characteristics of the network as a whole, known as sociocentric (Glanz, Rimer, & Viswanath, 2008). Egocentric networks focus on one individual and the people he/she has close ties with. Egocentric networks consist of several actors (Reid, 2017). They are composed of an ego (primary actor), his/her set of alters, who are tied to their ego (possibly friends and family), and the linkages among the alters (Reid, 2017). On the other hand, sociocentric networks are based on the social ties between all targeted individuals possibly a certain population. Egocentric and sociocentric networks, both share behaviors, beliefs, attitudes, and values that are shaped through contact and communication with others (Glanz, Rimer, & Viswanath, 2008).

Characteristics that describe egocentric networks are reciprocity, intensity/strength, formality, and complexity (Glanz, Rimer, & Viswanath, 2008). Reciprocity is defined as the extent of which resources and support are received and given. Intensity/strength is the extent to which the relationship offers emotional closeness. Formality is the extent to which the relationship exists in organization or institutional settings. Complexity is the extent to which the social relationship serves many functions (Glanz, Rimer, & Viswanath, 2008). Conversely, characteristics that describe sociocentric networks are homogeneity, geographic dispersion, and

density. Homogeneity refers to the similarity in the members of the network in terms of demographics such as age, race, and socioeconomic status. Geographic dispersion refers to how close in proximity members live to the individual in focus. Density is the extent to which members of the network interact and know each other (Glanz, Rimer, & Viswanath, 2008). As explained, each type of social network has its own characteristics.

Social networks and the impact on the engagement with delinquency has been studied by several criminologists. Although most of them only focus on one aspect of social networks which is the association with delinquent peers and support given by family and friends (Mazerolle, 1998; Mazerolle & Maahs, 2000; Piquero & Sealock, 2004). One recent and significant research conducted by Mennis and Mason (2012) used social networks as a construct in their model. Social networks were defined as their ties with personal contacts that they considered to be close to. To measure social networks, adolescents had to generate a list of individuals close to them. Then they were asked to collect behavioral information on each person in their social networks such as engaging in illegal behaviors. Mennis and Mason (2012) noted that the egocentric social networks model is a reliable indicator of adolescent social network's risky behavior.

THEORETICAL FRAMEWORK

Based on research discussed, there are certain factors that affect a juvenile's tendency to engage in delinquent behaviors such as strains, depression, and social networks as seen in Figure 1. Strains seem to have a direct impact on delinquency (Agnew, 1992). As studies on juvenile delinquency progressed, researchers realized that negative emotions act as a mediator between strains and delinquency (Piquero & Sealock, 2004; Moon & Morash, 2017). Strains can lead to emotions such as depression and anger which can then result in delinquency (Piquero & Sealock, 2004; Moon & Morash, 2017). A more recent study showed that the relationship between negative emotions and delinquency can be affected by the interaction with social networks (Moon & Morash, 2017). Social networks such as family members and friends of adolescents can influence the engagement in crime (Moon & Morash, 2017). Moreover, research shows minority groups are more likely to be involved in delinquent behaviors, hence the reason why Hispanics were chosen for this research (Peeples & Loeber, 1994; McNulty & Bellair, 2003). Additionally, the focus of this study is Hispanic females due to the differences in their reaction to strains and their engagement in juvenile delinquency (Levin, Smith, Caldwell, & Kimbrough, 1995; Broidy & Agnew, 1997; Paetsch & Bertrand, 1997; Barnes, Hoffman, Welte, Farrell, & Dintcheff, 2007; Jennings, Piquero, Gover, & Perez, 2009; Moon & Morash, 2017).

As previously mentioned, Figure 1 shows the factors that affect juvenile delinquency such as strains, depression, and social networks. For this study, strains impact depression and when negative emotions such as depression are triggered it can lead to juvenile delinquency. Furthermore, this relationship can be strengthened or weakened by social networks. Based on previous research, it is known that strains are associated with juvenile delinquency. Although some strains directly affect juvenile delinquency, others result in emotions such as anger and/or

depression which can cause delinquency. Based on the information from previous studies, social networks can influence delinquency in a positive or negative manner.

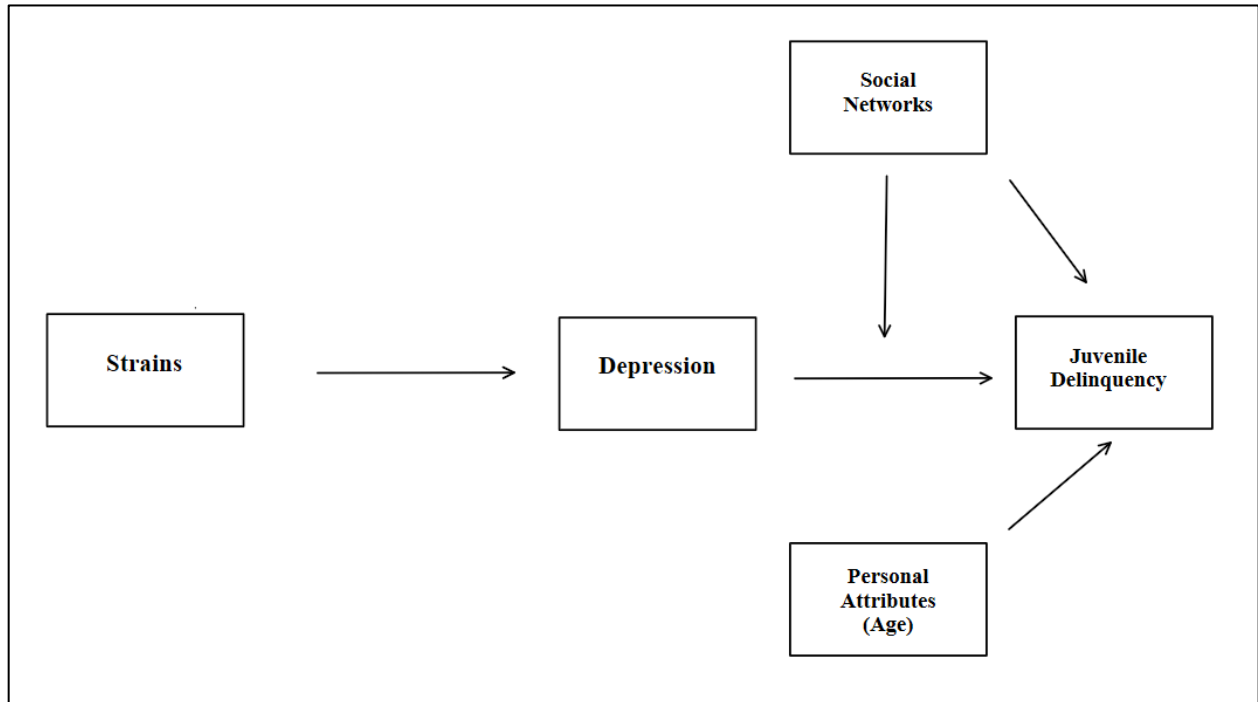


Figure 1: Theoretical model of the relationship between strains and juvenile delinquency mediated by depression and interacting with social networks.

For this thesis, the concept strain was defined as an environmental event that threatens the psychological and/or physical well-being of an individual such as obstruction of positively valued goals, removal of positively valued stimuli, and/or the introduction of negative stimuli. This was based on Piquero and Sealock's (2004) definition, which is the introduction of noxious stimuli or a discrepancy between expected and actual outcomes with a combination of Moon and Morash's (2017) measurements of strains such as financial strain and gender discrimination. Based on previous research showing the gender differences of strains in juvenile delinquency, measurements used by Moon and Morash (2017) were selected and updated to fit the study

population. Strains were measured by financial strain and minority status strain to study the relationship between strains and juvenile delinquency among Hispanic females. Minority status strain was composed of acculturation, defined as the process of sharing or learning individuals might experience after encountering a cultural group that has different social cultural customs and values. Acculturation can be experienced by non-U.S. born Hispanic individuals and second as well as third generations due to heritage and culture still playing an important role in their environment at home and community (Rogers, Forster, Valente, & Unger, 2020; Schwartz, Zamboanga, Ham, Park, Kim, Weisskirch, Castillo, Huynh, Donovan, & Vernon, 2011).

Equally important, emotions were defined as a state of mind resulting from experiences and/or relationships with others. Based on this, negative emotions are a state of mind resulting from traumatic experiences and/or relationships. The model that best fits the definition is the interactional model of emotions, in which the state of mind is a result of social context or cultural rules. Based on the results from previous studies, various negative emotions were selected due to their possible disposition to juvenile delinquency, but due to the limitation of the data available, only depression was used in this study. Depression is a mood disorder that causes persistent feelings of sadness and loss of interest. This study focused on depressive symptomology, which is the grouping of symptoms that assesses the severity of depression and can include depressive mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance (Radloff, 1977). Depression was measured by using the Center for Epidemiologic Studies Depression Scale (CES-D), a short self-report scale that measures depressive symptomology in the general population (6-year-old children to elderly) (Radloff, 1977).

As can be summarized, researchers have encouraged future studies to better define juvenile delinquency. For the purpose of this study, juvenile delinquency was defined using Moon and Morash's (2017) definition for several reasons. First, this study is a partial replication of Moon and Morash's (2017) study. Second, they defined juvenile delinquency using three measures: violent, property, and status offenses. Thus, their definition is the optimal one as it considers more than one type of delinquency which is important for studies attempting to uncover differences in delinquency based on gender.

The construct juvenile delinquency had three sub-concepts (violent crime, non-violent crime, and status offenses). Violent crimes are those that involve force against a person (Hoffman & Dufur, 2018; Moon & Morash, 2017). Non-violent crimes do not involve force against a person and can be both property and public crimes. Status offenses are actions prohibited to minors, meaning if an adult would engage in the same behavior, it would not be considered a crime (e.g., truancy and running away from home) (Moon & Morash, 2017). Additionally, based on research conducted on what ages define juveniles, juveniles in this study will constitute of individuals who are not considered adults due to their mental incapability of understanding the consequences of engaging in law violating behavior. Juveniles studied ranged from ages fourteen to seventeen in 9th-12th grade.

Based on the extant research, social networks are defined as individuals (alters) with whom a person (ego) interacts with on a frequent basis resulting in an exchange or change in behaviors, beliefs, attitudes, and values. This study was based on the egocentric social networks approach. The reason why social networks were chosen as an interaction variable is because it is believed that they can intensify or neutralize the impact of strains and negative emotions on juvenile delinquency.

Research Questions

RQ1: Does depression mediate the relationship between strains and juvenile delinquency?

RQ2: Is there an interaction effect between social networks and depression on juvenile delinquency?

Hypotheses

H1A: Experiencing strains will cause depression, and feelings of depression will increase the odds of engaging in delinquency. **H1O:** Experiencing strains will not have an impact in depression, and depression will not affect the odds of engaging in delinquency. **H2A:** Social networks will have an interaction effect on the relationship between depression and juvenile delinquency. **H2O:** Social networks will not have an interaction effect in the relationship between depression and juvenile delinquency.

METHODOLOGY

Study Location, Sampling, and Target Population

The data for this study were acquired from the Drug Use and Cultural Factors Among Hispanic Adolescents and Emerging Adults, Los Angeles (2006-2016)¹ (Unger 2018 dataset), a restricted longitudinal survey dataset from Inter-University Consortium for Political and Social Research (ICPSR). The data were collected to primarily measure the prevalence of drug use in Hispanic adolescents and emerging adults in Southern California based on cultural aspects that would lead them to use drugs and factors that would detract them from engaging in drug use (Unger, 2018). Adolescents in 9th grade were asked to provide information on the use of drugs, alcohol, acculturation, ethnic identity, cultural stressors, cultural values, and relationships with peers and family (Unger, 2018).

The data were collected from 2006-2016 (Unger, 2018). The participants were selected for the study because of their ethnicity/race. Initially, participants were gathered from seven high schools in Los Angeles, California because their population was seventy percent Hispanic. Then in the second wave of the study, an eighth school was added to the sample. These schools were also selected because of their wide range of socioeconomic characteristics. Sampling included schools with Hispanic adolescents and a range of socioeconomic characteristics (Unger, 2018). In 2005, all 9th grade students attending the selected schools were invited to participate in the study, a total of 3,218 students. Only seventy-five percent turned in parental consent and student assent forms (n = 2,420). Out of the ones who provided consent and assent forms, only 2,226 students took the survey. Only students who identified themselves as Hispanic, Latino/a, Mexican, Mexican American, South American, Central American, Mestizo, Chicano/a, La Raza,

¹The dataset used was a restricted dataset found in ICPSR. The approval of Institutional Review Board (IRB) was needed, and IRB approval was granted on 01/17/2020.

or Spanish were selected to continue with the additional waves of the study. The respondents that completed surveys in 10th grade were 1,773 adolescents. Overall, the type of method data collection used was survey and the mode of data collection used were computer-assisted telephone interview (CATI), mail questionnaire, on-site questionnaire, and telephone interview (Unger, 2018).

This thesis takes the approach of a secondary data analysis of Wave 2 on Unger 2018 dataset, an original and longitudinal survey. Wave 2 was selected due to its richness in important GST topics which were not found in other waves of the original longitudinal study such as the use of drugs and alcohol, acculturation, cultural stressors, and relationships with peers and family members. Focusing on only Wave 2 of the original study makes this thesis a cross-sectional secondary data analysis because information on many cases is examined only at one point in time (Neuman, 2011). Moreover, the data used were collected in 2007 when respondents were adolescents. The target population for this thesis was composed of Hispanic/Latino adolescent females (ranging from 9th to 12th grade) and a sample size of 1,045 respondents. The sample size will change depending on the analysis being conducted because of missing information in the dataset.

Data Collection Method

As previously mentioned, this thesis is in the form of a cross-sectional secondary data analysis, a type of a non-reactive research, of a wave of a longitudinal study (Neuman, 2011). This type of analysis consists of using data that was originally gathered by someone else for the purposes of research. Longitudinal studies from primary data collection can analyze adolescent's development over time and may include extensive measurements on the areas of interest for researchers such as problem behaviors, achievement, mental health, etc. (Davis-Kean, Jager, &

Maslowsky, 2015). These studies are rich in data because they cover an array of topics, which can be used to conduct secondary data analysis (Vartanian, 2011). Cross-sectional studies determine prevalence which is studying several similar cases in a population at a given point in time and are also used to infer causation (Mann, 2003).

The reason as to why this type of research was chosen was because datasets can have nationally representative data as well as increase external validity and statistical power if collected at the population level. Cross-sectional studies require less sources to run the study and is the best way to determine prevalence and associations (Mann, 2003). Moreover, the time reduced from data collection and money saved from conducting primary research, can be used to conduct advanced statistical research. Since data was originally collected by other researchers, observer bias diminishes (Mann, 2003). Therefore, ICPSR, the world's main source for social science data, was accessed to search for a dataset with information on strains and juvenile delinquency (Neuman, 2011).

Measurement Scheme

Control Variable. Age, which ranged from 14-17 years old, is the only control variable used in this study. Age was initially measured as a continuous variable in the Unger 2018 dataset, where respondents were asked their age in years. For the purpose of this study, age was recoded as an ordinal level variable to represent equal group sizes (1 = 14 years old, 2 = 15 years old, 3 = 16 years old or older). The initial frequency distribution of age was so dispersed and was mainly concentrated in 15 years old which is why it had to be recoded into an ordinal level measurement. It is important to note that ethnicity/race and gender were not used as control variables due to the sample population being focused on Hispanic females. A subset of the original Wave 2 dataset was created which only included females of Latin descent. These were

students who identified themselves as Hispanic, Latino/a, Mexican, Mexican American, South American, Central American, Mestizo, Chicano/a, La Raza, or Spanish.

Independent Variable: Strains. As previously mentioned, strains were measured using multiple indicators such as financial strain and minority status strain. The reason behind using multiple indicators was to improve measurement reliability, mainly equivalence reliability (Kerlinger & Lee, 2000). Furthermore, different indicators are meant to measure diverse aspects of strains.

Financial strain was operationalized with two measures: free or reduced lunch and deviation from median household income. Free or reduced lunch was measured at the nominal level. This was derived from the question: “Do you receive free or reduced lunch at school?” (1 = yes, 0 = no). Most families who receive free or reduced lunch at school tend to be low-income families, but that does not mean they are suffering from financial strain (Alford, Perreault, Zellner, & Ballenger, 2011; Domina, Pharris-Ciurej, Penner, Penner, Brummet, Porter, & Sanabria, 2018).

To better measure financial strain, the deviation from median household income was calculated. This was done using the respondents’ zip codes and the median household income based on zip codes for the United States. Adolescents were asked to provide their zip code. Some zip codes were missing (17 zip codes), while other zip codes were non-existent due to possible miswrites (5 zip codes). For the purpose of keeping a larger sample, a total of 22 zip codes were replaced with the school zip codes, assuming they reside near the school they are attending.

Additionally, the median household income for the United States from 2006-2010 was gathered from the American Community Survey (ACS) found in the Michigan Population Studies Center Institute for Social Research website. The respondents’ zip codes were cross

referenced with the zip codes from the data in ACS (2006-2010) to gather the median household income for respondents. The median household income for respondents reflected the median household income from 2006-2010.

To compute for the deviation from median household income, the median household income for California in 2007 (\$59,928) was subtracted from the respondents' median household income (U.S. Census Bureau, 2008). The California median household income was used because it better represents respondents' economic status relative to the area where they reside, compared to the national median household income. This also allows to examine whether respondents fall below or above the median household income, relative to their state. Negative amounts of deviation in household income represented financial strain because respondents' income was not enough to provide for basic needs. Conversely, positive amounts of deviations in household income represented no financial strain for respondents, due to their income surpassing the median household income in their state.

Moreover, only one dimension of minority status strain was used in this thesis: acculturation stress. Only one dimension of minority was selected in order to keep a larger sample size. Other forms acculturation stress and discrimination were considered, but the missing values would decrease the sample size to 67 respondents. Acculturation stress was measured by asking respondents to select the answer that represents their feelings about the following statement: "Feel uncomfortable when I have to choose between Latino/Hispanic and American ways of doing things" (1 = no/does not apply, 2 = not at all stressful, 3 = a little stressful, 4 = somewhat stressful, 5 = very stressful, and 6 = extremely stressful). To reflect strain, the acculturation stress variable was recoded but remained at the ordinal level

measurement (full strain = 2, partial strain = 1, no strain = 0). Three categories were selected to represent the type of strain respondents were experiencing and to obtain similar group sizes.

Mediator Variable: Depression. Based on previous research and due to the limited availability of data, the construct negative emotions used in GST was changed. This thesis uses the construct depression as a mediator instead of negative emotions because the original dataset lacked information on other emotions. Depression was operationalized using the CES-D scale which was designed for the general population. The scale includes 20 self-report items each of which are scored on a 4-point scale (0-3 points) and measures depression symptoms experienced in the past week (1 = less than 1 day or never, 2 = 1-2 days, 3 = 3-4 days, and 4 = 5-7 days) (Radloff, 1977)². Any respondents who did not answer four or more questions were removed from the sample because it would be unethical to diagnose them with missing information as per Radloff's protocol and documentation.

The scoring for each question that expressed depression symptomology was recoded as follows: 0 points = less than 1 day or never, 1 point = 1-2 days, 2 points = 3-4 days, and 3 points = 5-7 days. For questions that expressed positive emotions, the points were reverse coded as follows: 3 points = less than 1 day or never, 2 points = 1-2 days, 1 point = 3-4 days, and 0 points = 5-7 days. Questions related to positive emotions were 4,8,12, and 16, which can be found in Appendix A on the questionnaire for CES-D. The scores for all 20 questions were summed to create an index depression score. The scores ranged from 0-60 points where 0 points = no depressive symptoms and 60 points = possibility of having major depression. Radloff (1977) created three categories to help understand where respondents fit when examining depressive symptoms. Any score below 15 points indicated no depression symptoms, a score of 15-21

²Questionnaire for CES-D can be found in Appendix A.

points had mild to moderate depression, and any score higher than 21 points appeared to be experiencing high levels of depressive symptoms associated with major depression.

Moderator (Interaction) Variable: Social Networks. Social networks are defined as individuals (alters) with whom a person (ego) interacts with on a frequent basis resulting in an exchange or change in behaviors, beliefs, attitudes, and values. One important characteristic of the egocentric social networks was used in this study to measure social networks:

intensity/strength. Intensity or strength is the extent to which the relationship offers emotional closeness (Glanz, Rimer, & Viswanath, 2008). Intensity or strength was measured with one important question that was initially at the interval level. First, respondents were asked to think about their five closest friends. Then, they were asked to rank their closeness with their friends from 1 = not close to 5 = extremely close. Social networks were then defined by the overall median closeness to friends. This means that the median was gathered from the five ranks to measure the overall closeness of the respondents to their social networks.

Other variables were used to operationalize social networks: total number of friends, average years known, friends' acceptance of drug use, friends' acceptance of juvenile delinquency, proportion of friends who smoke cigarettes, proportion of friends who smoke marijuana, and proportion of friends who drink alcohol. The total number of friends was measured by using the rank of closeness to each friend (1 = not close to 5 = extremely close) for each respondent. Respondents were asked to rank their relationship to their 5 closest friends (friend A through friend E). It was assumed that respondents did not answer questions related to closeness to friends because it did not apply to them. To calculate the total number of friends, the missing values were subtracted from the total number of close friends they were initially asked about (5 friends). For example, one respondent ranked their relationship with close friends A-C,

but did not rank their relationship with close friends D-E. The total number of friends asked about (5) minus missing values (2) is equal to total number of friends (3). This means the respondent only had 3 close friends and the rest were missing values because they did not have any more friends. Furthermore, the average years known was measured by the question: "How long have you known friend A?" This was asked for friend A through friend E and was a continuous variable ranging from 0-17 years. The mean was then calculated for the total number of years known for all friends (friend A through friend E).

Moreover, variables related to the acceptance of several behaviors and involvement of friends in juvenile delinquency were used to measure social networks. Friends' acceptance of drug use was measured by looking into the general view of drug use. Respondents were asked: "How many of your five closest friends believe it is okay for someone your age to do drugs?". The responses were kept in the original format, ordinal level (1 = none, 2 = 1-2 friends, 3 = 3-4 friends, and 4 = all 5 friends).

Friends' acceptance of juvenile delinquency was a combination of the friends' opinions on several behaviors the respondents engaged in, such as alcohol use, marijuana use, and cigarette use. An index was created to measure friends' acceptance of juvenile delinquency to combine multiple indicators of social networks, and because of its usefulness for content and convergent validity (Neuman, 2011). The index was derived from three questions where each question was answerable by 1 = strongly disapprove, 2 = disapprove, 3 = approve, and 4 = strongly approve: (1) "How would your five closest friends feel about you smoking marijuana occasionally?" (2) "How would your five closest friends feel about you if you had one or two drinks nearly every day?", and (3) "How would your five closest friends feel if you smoked one

or more packs of cigarettes a day?”. The median was calculated from the unweighted index to compute for friends’ acceptance of juvenile delinquency.

Another important aspect of social networks in this study was friends’ engagement in delinquent behaviors. Respondents were asked if their friends (friend A through friend E) drank alcohol, smoked marijuana, and smoked cigarettes (1 = yes, 0 = no). Each question was asked individually for each friend. The binary responses for each question were added and the sum was divided by the number of friends. In essence, the average of all five friends was calculated to measure the proportion of friends who drank alcohol and had values that ranged from 0-1. The same calculations were followed to measure the proportion of friends who smoked cigarettes and the proportion of friends who smoked marijuana.

Dependent Variable: Juvenile Delinquency. The construct juvenile delinquency was operationalized using three measures: violent juvenile delinquency, non-violent juvenile delinquency, and status offenses. Violent crimes are those that involve force against a person (Hoffman & Dufur, 2018; Moon & Morash, 2017). Non-violent crimes do not involve force against a person and can be both property and public crimes. Status offenses are actions prohibited to minors, meaning if an adult would engage in the same behavior it would not be considered a crime (Moon & Morash, 2017). Different questions were asked about the behaviors respondents engaged in, and all of them were measured at the nominal level. Some variables were initially measuring how often respondents engaged in certain type of behaviors, so they were recoded to reveal if respondents engaged in juvenile delinquency. Recoding the variables would now reflect whether adolescents were engaging in delinquent behaviors regardless of how often they engage in such behaviors.

Response to the question: “During the past 12 months, how many times were you in a physical fight?” was used to measure the construct violent juvenile delinquency. The responses were measured at the ordinal level (1= 0 times, 2 = 1 time, 3 = 2 or 3 times, 4 = 4 or 5 times, 5 = 6 or 7 times, 6 = 8 or 9 times, 7 = 10 or 11 times, and 8 = 12 or more times). This variable was recoded into a nominal level measurement where 0 = no (not involved in violent delinquency) and 1 = yes (involvement in violent delinquency), because the times they were involved in violent juvenile delinquency is not as important to this study as knowing if they were involved in such behaviors.

Non-violent delinquency was measured using a question related to drug use. Drug use was measured at an ordinal level: “In your lifetime, how many times have you ever used marijuana?”. The responses were as follows: 1 = 0 times, 2 = 1-2 times, 3 = 3-9 times, 4 = 10-19 times, 5 = 20-39 times, 6 = 40+ times. Similar questions were asked for cocaine, methamphetamine, ecstasy, hallucinogens, inhalants, prescription drugs, diet pills without prescription, any drug with an IV, and other drugs. An index was used to measure lifetime drug use. Respondents’ answers were summed, and two categories were created to represent 0 = no (never used drugs) and 1 = yes (used any type of drug). Respondents must have answered 0 times to all drug related questions in order to be in the category 0 = no (never used drugs). If the composite score was 1 time or greater, then respondents were placed in the category for 1 = yes (used any type of drug).

Status delinquency was measured using two different dimensions: underage cigarette smoking and underage drinking. Underage smoking was operationalized as a nominal level measurement based on the following question: “Have you ever tried cigarette smoking?” (no = 0, yes = 1). Underage drinking was measured with the question: “During your life, how many days

did you have at least 1 drink?”. This was initially measured at the ordinal level (1= 0 days, 2 = 1-2 days, 3 = 3-9 days, 4 = 10-19 days, 5 = 20-39 days, 6 = 40-99 days, and 7 = 100+ days). To measure status delinquency, the variable was recoded to a nominal level where 0 = no (individuals that had never had a drink) and 1 = yes (anybody who engaged in having 1 drink or more).

Methods of Analysis

Statistical Packages for the Social Sciences (SPSS 27 Premium Version) was used to perform the statistical analyses for this study. Two different types of statistical analyses were used: linear regression and binary logistic regression. Linear regression is a type of regression most frequently used by researchers (Stoltzfus, 2011). It is used to analyze dependent variables that are continuous (Stoltzfus, 2011). Linear regression was used to model the relationship between depression score (dependent variable), acculturation stress (independent variable), free/reduced lunch (independent variable), deviation from median household income (independent variable), and age (control variable). Depression was measured categorically and as an index. Since linear regression requires a continuous dependent variable, depression as an index was chosen for this analysis because it is an approximate continuous variable.

Despite its popularity, linear regression cannot be used for non-continuous dependent variables. A method to use when the dependent variable has two categories only is a binary logistic regression (Stoltzfus, 2011). Although binary logistic regression is like linear regression, there are two important differences: (1) it estimates the probability of one outcome category versus the other and (2) the linear regression equation for the independent variables is transformed into a logit scale so that the probability of the binary outcome may fall between 0

and 1 (Stoltzfus, 2011). The binary logistic regression analysis was chosen because the dependent variables that were being modeled had only two categories (1 = yes, 0 = no).

Four binary logistic regression analyzes were performed to predict the odds of engaging in different types of juvenile delinquency. The first binary logistic regression analysis evaluated the relationship between the violent juvenile delinquency - involvement in fights (dependent variable), median closeness to friends (independent variable), friends' acceptance of juvenile delinquency (independent variable), friends' acceptance of drug use (independent variable), depression score (independent variable), years known [average of 5 friends] (independent variable), number of friends (independent variable), proportion of friends who smoke cigarettes (independent variable), proportion of friends who smoke marijuana (independent variable), proportion of friends who drink alcohol (independent variable), and age (control variable). The second binary logistic regression analysis used the same independent and control variables except that it predicted a different dependent variable (non-violent juvenile delinquency - lifetime drug use). The third and fourth binary logistic regression models had the same independent and control variables as the previous models but predicted status delinquency (lifetime cigarette use and lifetime alcohol use). The binary logistic regressions were also used to investigate the interaction effect of the social network variables on the different types of juvenile delinquency. In all regression modeling, the following type-I error rates were applied as thresholds of statistical significance: 0.05 which was indicated by a single asterisk (*), 0.01 by double asterisks (**), and 0.001 with triple asterisks (***)

RESULTS

Descriptive Statistics

Table 1 shows that all the respondents in this sample were female ($n = 1,045$), 7.4% were 14 years old, 86.0% were 15 years old, and 6.6% were 16 years or older. Regarding free/reduced lunch, 78.1% received assistance, while 21.9% did not receive assistance for school meals. The average for deviation from median household income (in thousand \$) was $-\$10.08$, while the minimum and maximum were $-\$36.20$ and $\$62.95$, respectively.

In relation to acculturation, 47.7% of adolescents reported no strain, 39.1% of adolescents reported partial strain, and 13.2% of adolescents reported full strain. The percentages for level of depression experienced by respondents were 45.9% for no depression symptoms, 20.6% for mild to moderate depression, and 33.5% for the possibility of major depression. Furthermore, depression as an index ranged from 0 to 60 points, the average was 18.01, and the standard deviation was 11.42.

The mean of the average of years known for all five friends was 4.08 and ranged from 0 to 16 years. Moreover, out of a maximum of 5 friends, the average number of friends was 4.48. The average for median closeness to friends was 4.30 where 1 was not close and 5 was extremely close. The percentage of friends' acceptance of drug abuse was 50.8% for none, 35.4% for 1-2 friends, 9.9% for 3-4 friends, and 3.8% for all 5 friends. The combination or index of friends' acceptance of engagement in juvenile delinquency involving alcohol use, marijuana use, and cigarette use, had a median that ranged from 1 which was strongly disapprove to 4 being strongly approve. Friends' acceptance of juvenile delinquency also exhibited an average of 1.42. The proportion of friends who smoke cigarettes displayed an average of 0.21, while the proportion of friends who smoke marijuana had an average of 0.24, and the proportion of friends who drink

alcohol had an average of 0.34.

Additionally, about 76% of respondents denied any involvement in fights, while 24% acknowledged to have been involved in a fight. Overall, 59.9% of respondents denied any drug use in their lifetime, while 40.1% admitted to some type of drug use in their lifetime. In terms of lifetime cigarette use, 69.4% had not tried cigarette smoking, and 30.6% had engaged in cigarette smoking. Conversely, alcohol use had the highest percentage, being 65% for respondents who disclosed to have had at least 1 alcoholic drink in their lifetime, while 35% of respondents denied any consumption of an alcoholic drink in their lifetime.

Hispanic females reported higher participation rates in status delinquency, especially for alcohol use, than in non-violent and violent delinquency. For status delinquency, about 65% of females engaged in alcohol use, while 31% of females engaged in cigarette use. Moreover, non-violent delinquency showed a 40% of females engaged in drug use. Approximately 24% females reported engagement in violent delinquency, specifically engagement in a fight, which was the same found in Paetsch and Bertrand's (1997) study. Compared to previous studies, females also had a higher tendency to engage in self-destructive behaviors such as drug use, alcohol use, and cigarette use compared to other forms of delinquent behaviors.

Table 1: Descriptive Statistics

Variables	Counts			Mean	SD	Min	Max
	F	(%)	<i>n</i>				
Female	-	-	1045	-	0	1	1
0 = no	0	0.0	-	-	-	-	-
1 = yes	1045	100.0	-	-	-	-	-
Age	-	-	1045	-	0.37	1	3
1 = 14 years old	77	7.4	-	-	-	-	-
2 = 15 years old	899	86.0	-	-	-	-	-
3 = 16 years or older	69	6.6	-	-	-	-	-
Free/Reduced Lunch	-	-	753	-	0.41	0	1
0 = no	165	21.9	-	-	-	-	-
1 = yes	588	78.1	-	-	-	-	-
Deviance From Median HH Income (in thousand \$)	-	-	1044	-10.08	9.74	-36.20	62.95
Acculturation	-	-	516	-	0.70	0	2
0 = no strain	246	47.7	-	-	-	-	-
1 = partial strain	202	39.1	-	-	-	-	-
2 = full strain	68	13.2	-	-	-	-	-
Level of Depression	-	-	1045	-	0.88	1	3
0 = no symptoms	480	45.9	-	-	-	-	-
1 = mild to moderate depression	215	20.6	-	-	-	-	-
2 = possibility major depression	350	33.5	-	-	-	-	-
Total Depression Score (0 - 60)	-	-	1045	18.01	11.42	0	58
Years Known (average in years of 5 friends)	-	-	1017	4.08	2.68	0	16
Total Number of Friends (0 - 5)	-	-	1045	4.48	1.12	0	5
Median Closeness to Friends ^a	-	-	1016	4.30	0.78	1	5
Friends' Acceptance of Drug Use	-	-	1039	-	0.81	1	4
1 = none	528	50.8	-	-	-	-	-
2 = 1 - 2 friends	368	35.4	-	-	-	-	-
3 = 3 - 4 friends	103	9.9	-	-	-	-	-
4 = all 5 friends	40	3.8	-	-	-	-	-
Friends' Acceptance of JD ^b	-	-	1020	1.42	0.62	1	4
Proportion of Friends Who Smoke Cigarettes	-	-	1022	0.21	0.29	0	1
Proportion of Friends Who Smoke Marijuana	-	-	1024	0.24	0.30	0	1
Proportion of Friends Who Drink Alcohol	-	-	1023	0.34	0.35	0	1
Involvement in Fights	-	-	984	0.24	-	0	1
0 = no	752	76.4	-	-	-	-	-
1 = yes	232	23.6	-	-	-	-	-
Lifetime Drug Use ^c	-	-	1039	0.40	-	0	1
0 = no	622	59.9	-	-	-	-	-
1 = yes	417	40.1	-	-	-	-	-
Lifetime Cigarette Use ^c	-	-	1044	0.31	-	0	1
0 = no	725	69.4	-	-	-	-	-
1 = yes	319	30.6	-	-	-	-	-
Lifetime Alcohol Use ^c	-	-	1043	0.65	-	0	1
0 = no	365	35	-	-	-	-	-
1 = yes	678	65	-	-	-	-	-

^a Median ranging from 1 = not close to 5 = extremely close

^b Friends' Acceptance of Engagement in Juvenile Delinquency (Alcohol Use, Marijuana Use, and Cigarette Use) - Median ranging from 1 = strongly disapprove to 4 = strongly approve

^c The percentage of yes and the mean provide the same information except one is expressed as a percentage while the other is a proportion of yes.

Linear Regression Results for Depression

Table 2 displays results of a linear regression modeling depression and variables related to strain. The table indicates the relationship between depression, financial strain, and minority status strain.³ Age (16 years or older, $B = -1.64$, $p > 0.05$), age (15 years old, $B = -0.11$, $p > 0.05$), free reduced lunch ($B = 0.34$, $p > 0.05$), and deviation from median household income ($B = 0.00$, $p > 0.05$) were not statistically significant predictors of depression. However, acculturation was a statistically significant predictor of depression. Both, full strain ($B = 7.60$, $p < 0.001$) and partial strain ($B = 2.32$, $p < 0.05$) related to acculturation were positively associated with depression. Partial acculturation strain is 2.32 points higher compared to no acculturation strain (reference group). This means that those who have partial strain have a score of 2.32 points higher in the depression scale, compared to no strain. On the other hand, full acculturation strain is 7.60 points higher, compared to no acculturation strain (reference group). Similar to those who have partial strain, individuals who have full acculturation strain have a score of 7.60 points higher in the depression scale, compared to those with no acculturation strain. Hence, the take home point from Table 2 is that depression is very much influenced by acculturation strain, but not by an economic related strain.

Binary Logistic Regression Results for Violent Juvenile Delinquency

Table 3 presents the results of a binary logistic regression of violent delinquency (involvement in fights) on variables related to depression and social networks. There was no significant interaction effect for social network variables and depression predicting violent delinquency. However, there were two statistically significant predictors of violent delinquency: friends' acceptance of juvenile delinquency ($p < 0.05$) and proportion of friends who drink

³ The total depression score (as an index) was used for the linear regression as opposed to the level of depression (categorical form).

alcohol ($p < 0.01$). This means that friends' acceptance of juvenile delinquency and proportion of friends who drink alcohol directly influenced violent juvenile delinquency. Friends' acceptance of juvenile delinquency ($\text{Exp}(B) = 1.94$, $p < 0.05$) and proportion of friends who drink alcohol ($\text{Exp}(B) = 4.26$, $p < 0.01$) were positively related to violent delinquency. This means that a one percentage point increase in friends' acceptance of juvenile delinquency magnified the odds of violent delinquency by 1.94 times. Similarly, one percentage point increase in the proportion of friends who drink alcohol magnified the odds of violent delinquency by 4.26 times.

Table 2: Linear regression results for depression (n = 382).

Predictors	B	SE	p value
Constant	16.38***	2.50	0.0000
Acculturation (2 = full strain)	7.60***	2.18	0.0000
Acculturation (1 = partial strain)	2.32*	1.15	0.0430
Acculturation (0 = no strain)	-	-	-
Age (3 = 16 years old or older)	-1.64	2.82	0.5620
Age (2 = 15 years old)	-0.11	2.20	0.9600
Age (1 = 14 years old)	-	-	-
Free/Reduced Lunch (1 = yes)	0.34	1.40	0.8060
Free/Reduced Lunch (0 = no)	-	-	-
Deviation From Median HH Income ^a	0.00	0.00	0.2920

R-Squared: 0.050; Adjusted R-Squared: 0.034

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^a Deviation From Median Household Income was calculated by subtracting median household income for California in 2007 (\$59,928) from the respondents' median household income. This allows to examine whether respondents fall below or above the median household income, relative to their state.

The control variable used in the regression model did not show any statistical significance: age (16 years or older; $\text{Exp}(B) = 1.22$, $p > 0.05$) and age (15 years old; $\text{Exp}(B) = 0.67$, $p > 0.05$). Depression ($\text{Exp}(B) = 1.03$, $p > 0.05$) was not a statistically significant predictor of violent juvenile delinquency. Dimensions of social networks as predictors of violent juvenile delinquency that were not significant consisted of: median closeness to friends ($\text{Exp}(B) = 1.06$, $p > 0.05$), friends' acceptance of drug use (all 5 friends, $\text{Exp}(B) = 0.43$, $p > 0.05$), friends' acceptance of drug use (3-4 friends, $\text{Exp}(B) = 0.54$, $p > 0.05$), friends' acceptance of drug use (1-2 friends, $\text{Exp}(B) = 0.95$, $p > 0.05$), years known (average in years for 5 friends, $\text{Exp}(B) = 0.98$,

$p > 0.05$), total number of friends ($\text{Exp}(B) = 0.97$, $p > 0.05$), proportion of friends who smoke cigarettes ($\text{Exp}(B) = 2.56$, $p > 0.05$), and proportion of friends who smoke marijuana ($\text{Exp}(B) = 3.79$, $p > 0.05$). Friends involvement in drug use and cigarette smoking were not related to violent delinquency. It was friend's alcohol use and the acceptance of juvenile delinquency that had an impact on violent delinquency.

Table 3: Binary logistic regression results for violent juvenile delinquency (involvement in fights; $n = 923$).

Predictors	B	SE	Exp(B)	p value
Age (3 = 16 years old or older)	0.20	0.42	1.22	0.6360
Age (2 = 15 years old)	-0.40	0.33	0.67	0.2280
Age (1 = 14 years old)	-	-	-	-
Median Closeness to Friends ^a	0.05	0.24	1.06	0.8240
Friends' Acceptance of JD	0.66*	0.31	1.94*	0.0310
Friends' Acceptance of Drug Use (4 = all 5 friends)	-0.85	1.11	0.43	0.4480
Friends' Acceptance of Drug Use (3 = 3 - 4 friends)	-0.63	0.69	0.54	0.3610
Friends' Acceptance of Drug Use (2 = 1 - 2 friends)	-0.05	0.41	0.95	0.8980
Friends' Acceptance of Drug Use (1 = none)	-	-	-	-
Total Depression Score (0 - 60)	0.03	0.06	1.03	0.6390
Years Known (average in years of 5 friends)	-0.02	0.06	0.98	0.7690
Total Number of Friends (0 - 5)	-0.03	0.23	0.97	0.8820
Proportion of Friends Who Smoke Cigarettes	0.94	0.76	2.56	0.2170
Proportion of Friends Who Smoke Marijuana	1.33	0.79	3.79	0.0900
Proportion of Friends Who Drink Alcohol	1.45**	0.53	4.26**	0.0060
Median Closeness to Friends X Total Depression Score (0 - 60)	0.00	0.01	1.00	0.7500
Friends' Acceptance of JD X Total Depression Score (0 - 60)	-0.01	0.01	0.99	0.5180
Friends' Acceptance of Drug Use (4 = all 5 friends) X Total Depression Score (0 - 60)	0.04	0.04	1.04	0.3220
Friends' Acceptance of Drug Use (3 = 3 - 4 friends) X Total Depression Score (0 - 60)	0.05	0.03	1.05	0.0960
Friends' Acceptance of Drug Use (2 = 1 - 2 friends) X Total Depression Score (0 - 60)	0.02	0.02	1.02	0.2660
Friends' Acceptance of Drug Use (1 = none) X Total Depression Score (0 - 60)	-	-	-	-
Years Known (average in years of 5 friends) X Total Depression Score (0 - 60)	0.00	0.00	1.00	0.3800
Total Number of Friends (0 - 5) X Total Depression Score (0 - 60)	0.00	0.01	1.00	0.9370
Proportion of Friends Who Smoke Cigarettes X Total Depression Score (0 - 60)	-0.01	0.03	0.99	0.7690
Proportion of Friends Who Smoke Marijuana X Total Depression Score (0 - 60)	-0.05	0.03	0.95	0.0890
Proportion of Friends Who Drink Alcohol X Total Depression Score (0 - 60)	-0.04	0.02	0.96	0.0780

Pseudo R-Squared: 0.120

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^a Median ranging from 1 = not close to 5 = extremely close

Binary Logistic Regression Results for Non-Violent Juvenile Delinquency

Table 4 presents results of a binary logistic regression of non-violent juvenile delinquency (lifetime drug use) on variables that have to do with depression and social networks. There was no statistical significance found in the interaction terms for social network variables and depression, when predicting non-violent delinquency. Nonetheless, friends' acceptance of drug use (all 5 friends, $\text{Exp(B)} = 12.13$; $p < 0.01$), proportion of friends who smoke marijuana ($\text{Exp(B)} = 6.90$, $p < 0.01$), and proportion of friends who drink alcohol ($\text{Exp(B)} = 3.30$, $p < 0.05$) were statistically significant predictors of non-violent delinquency and had a positive correlation to lifetime drug use. Friends' acceptance of drug use, proportion of friends who smoke marijuana, and proportion of friends who drink alcohol had a main effect on non-violent juvenile delinquency. With each unit increase in friends' acceptance of drug use (all 5 friends), the odds of lifetime drug use were magnified by 12.13 times. A unit increase in the proportion of friends who smoke marijuana and proportion of friends who drink alcohol, resulted in the odds of non-violent juvenile delinquency being magnified by 6.90 times and 3.30 times, respectively.

Similar to violent delinquency, age was not statistically significant, when the model predicted non-violent delinquency (16 years or older, $\text{Exp(B)} = 0.80$, $p > 0.05$), age (15 years old, $\text{Exp(B)} = 0.79$, $p > 0.05$). Depression score ($\text{Exp(B)} = 1.04$, $p > 0.05$) was not statistically significant when predicting non-violent delinquency. Non-statistically significant social network related predictors included: friends' acceptance of drug use (3-4 friends, $\text{Exp(B)} = 2.17$, $p > 0.05$), friends' acceptance of drug use (1-2 friends, $\text{Exp(B)} = 1.04$, $p > 0.05$), median closeness to friends ($\text{Exp(B)} = 1.11$, $p > 0.05$), friends' acceptance of juvenile delinquency ($\text{Exp(B)} = 1.17$, $p > 0.05$), years known ($\text{Exp(B)} = 1.00$, $p > 0.05$), total number of friends ($\text{Exp(B)} = 0.90$, $p > 0.05$), and proportion of friends who smoke cigarettes ($\text{Exp(B)} = 1.80$, $p > 0.05$). Friends

involvement in cigarette use and acceptance of juvenile delinquency was not related to non-violent juvenile delinquency. On the other hand, friends' involvement in marijuana and alcohol uses as well as acceptance of drug use predicted non-violent juvenile delinquency.

Table 4: Binary logistic regression results for non-violent juvenile delinquency (lifetime drug use; n = 977).

Predictors	B	SE	Exp(B)	p value
Age (3 = 16 years old or older)	-0.22	0.39	0.80	0.5810
Age (2 = 15 years old)	-0.24	0.29	0.79	0.4040
Age (1 = 14 years old)	-	-	-	-
Friends' Acceptance of Drug Use (4 = all 5 friends)	2.50**	0.90	12.13**	0.0050
Friends' Acceptance of Drug Use (3 = 3 - 4 friends)	0.78	0.59	2.17	0.1890
Friends' Acceptance of Drug Use (2 = 1 - 2 friends)	0.04	0.34	1.04	0.9000
Friends' Acceptance of Drug Use (1 = none)	-	-	-	-
Median Closeness to Friends ^a	0.11	0.19	1.11	0.5830
Friends' Acceptance of JD	0.16	0.29	1.17	0.5940
Total Depression Score (0 - 60)	0.03	0.05	1.04	0.5280
Years Known (average in years of 5 friends)	-0.01	0.06	1.00	0.9280
Total Number of Friends (0 - 5)	-0.10	0.18	0.90	0.5610
Proportion of Friends Who Smoke Cigarettes	0.59	0.71	1.80	0.4110
Proportion of Friends Who Smoke Marijuana	1.93**	0.67	6.90**	0.0040
Proportion of Friends Who Drink Alcohol	1.19*	0.48	3.30*	0.0120
Friends' Acceptance of Drug Use (4 = all 5 friends) X Total Depression Score (0 - 60)	-0.04	0.03	0.96	0.1550
Friends' Acceptance of Drug Use (3 = 3 - 4 friends) X Total Depression Score (0 - 60)	-0.01	0.03	0.99	0.7850
Friends' Acceptance of Drug Use (2 = 1 - 2 friends) X Total Depression Score (0 - 60)	0.02	0.02	1.02	0.2880
Friends' Acceptance of Drug Use (1 = none) X Total Depression Score (0 - 60)	-	-	-	-
Median Closeness to Friends X Total Depression Score (0 - 60)	0.01	0.01	1.01	0.4130
Friends' Acceptance of JD X Total Depression Score (0 - 60)	0.01	0.01	1.01	0.4820
Years Known (average in years of 5 friends) X Total Depression Score (0 - 60)	0.00	0.00	1.00	0.4490
Total Number of Friends (0 - 5) X Total Depression Score (0 - 60)	-0.01	0.01	0.99	0.3840
Proportion of Friends Who Smoke Cigarettes X Total Depression Score (0 - 60)	-0.02	0.03	0.98	0.4950
Proportion of Friends Who Smoke Marijuana X Total Depression Score (0 - 60)	0.01	0.03	1.01	0.8020
Proportion of Friends Who Drink Alcohol X Total Depression Score (0 - 60)	-0.04	0.02	0.96	0.0760

Pseudo R-Squared: 0.191

* p < 0.05, ** p < 0.01, *** p < 0.001

^a Median ranging from 1 = not close to 5 = extremely close

Binary Logistic Regression Results for Status Delinquency

Table 5 shows the results of a binary logistic regression of status delinquency lifetime cigarette use on depression and social network variables. Median closeness to friends (Exp(B) = 0.67, p < 0.05), total number of friends (Exp(B) = 0.67, p < 0.05), proportion of friends who smoke cigarettes (Exp(B) = 14.42, p < 0.001), and proportion of friends who drink alcohol

(Exp(B) = 3.47, $p < 0.05$) were statistically significant predictors of status delinquency when predicting lifetime cigarette use. Median closeness to friends, total number of friends, proportion of friends who smoke cigarettes, and proportion of friends who drink alcohol directly impacted lifetime cigarette use. Median closeness to friends (Exp(B) = 0.67) and the total number of friends (Exp(B) = 0.67) were negatively associated to lifetime cigarette use. This means that a one percentage increase in median closeness to friends and total number of friends, decreased the magnification of the odds of status delinquency (lifetime cigarette use) by 0.67 times. On the contrary, proportion of friends who smoke cigarettes (Exp(B) = 14.42) and proportion of friends who drink alcohol (Exp(B) = 3.47) were positively associated to lifetime cigarette use. This means one percentage increase point in proportion of friends who smoke cigarettes and proportion of friends who drink alcohol, magnified the odds of status delinquency (lifetime cigarette use) by 14.42 times and 3.47 times, respectively.

Age (16 years old or older, Exp(B) = 1.11, $p > 0.05$), age (15 years old, Exp(B) = 0.76, $p > 0.05$) did not show any significance when predicting lifetime cigarette use. Depression (Exp(B) = 0.91, $p > 0.05$) was not statistically significant when predicting lifetime cigarette use. Dimensions of social networks that were statistically non-significant when predicting lifetime cigarette use were the following: friends' acceptance of drug use (all 5 friends, Exp(B) = 1.75, $p > 0.05$), friends' acceptance of drug use (3-4 friends, Exp(B) = 1.38, $p > 0.05$), friends' acceptance of drug use (1-2 friends, Exp(B) = 0.81, $p > 0.05$), friends' acceptance of juvenile delinquency (Exp(B) = 0.80, $p > 0.05$), years known (Exp(B) = 1.03, $p > 0.05$), and proportion of friends who smoke marijuana (Exp(B) = 2.85, $p > 0.05$). Friends acceptance of drug use and marijuana use were not related to cigarette use. It was friend's alcohol use and cigarette use as well as the number of friends and the closeness to them that was associated with cigarette use.

Table 5: Binary logistic regression results for status delinquency (lifetime cigarette use; n = 981).

Predictors	B	SE	Exp(B)	p value
Age (3 = 16 years old or older)	0.11	0.44	1.11	0.8120
Age (2 = 15 years old)	-0.27	0.33	0.76	0.4190
Age (1 = 14 years old)	-	-	-	-
Friends' Acceptance of Drug Use (4 = all 5 friends)	0.56	1.08	1.75	0.6050
Friends' Acceptance of Drug Use (3 = 3 - 4 friends)	0.32	0.60	1.38	0.5970
Friends' Acceptance of Drug Use (2 = 1 - 2 friends)	-0.21	0.39	0.81	0.5900
Friends' Acceptance of Drug Use (1 = none)	-	-	-	-
Median Closeness to Friends ^a	-0.40*	0.20	0.67*	0.0470
Friends' Acceptance of JD	-0.22	0.32	0.80	0.4820
Total Depression Score (0 - 60)	-0.10	0.06	0.91	0.1030
Years Known (average in years of 5 friends)	0.03	0.06	1.03	0.6680
Total Number of Friends (0 - 5)	-0.40*	0.19	0.67*	0.0360
Proportion of Friends Who Smoke Cigarettes	2.67***	0.71	14.42***	0.0000
Proportion of Friends Who Smoke Marijuana	1.05	0.68	2.85	0.1260
Proportion of Friends Who Drink Alcohol	1.24*	0.54	3.47*	0.0210
Friends' Acceptance of Drug Use (4 = all 5 friends) X Total Depression Score (0 - 60)	0.01	0.04	1.01	0.8850
Friends' Acceptance of Drug Use (3 = 3 - 4 friends) X Total Depression Score (0 - 60)	0.01	0.03	1.01	0.6380
Friends' Acceptance of Drug Use (2 = 1 - 2 friends) X Total Depression Score (0 - 60)	0.02	0.02	1.02	0.1940
Friends' Acceptance of Drug Use (1 = none) X Total Depression Score (0 - 60)	-	-	-	-
Median Closeness to Friends X Total Depression Score (0 - 60)	0.02**	0.01	1.02**	0.0080
Friends' Acceptance of JD X Total Depression Score (0 - 60)	0.02	0.01	1.02	0.0760
Years Known (average in years of 5 friends) X Total Depression Score (0 - 60)	0.00	0.00	1.00	0.2490
Total Number of Friends (0 - 5) X Total Depression Score (0 - 60)	0.01	0.01	1.01	0.5190
Proportion of Friends Who Smoke Cigarettes X Total Depression Score (0 - 60)	-0.03	0.03	0.97	0.3230
Proportion of Friends Who Smoke Marijuana X Total Depression Score (0 - 60)	-0.01	0.03	0.99	0.8330
Proportion of Friends Who Drink Alcohol X Total Depression Score (0 - 60)	-0.05*	0.02	0.95*	0.0420
Pseudo R-Squared: 0.201				

* p < 0.05, ** p < 0.01, *** p < 0.001

^a Median ranging from 1 = not close to 5 = extremely close

Lastly and most importantly, this analysis was the only one that showed statistically significant interaction effects. Two interaction terms, median closeness to friends x depression score (Exp(B) = 1.02, p < 0.01) and proportion of friends who drink alcohol x depression score (Exp(B) = 0.95, p < 0.05), were statistically significant when predicting cigarette use. Graphs explaining the interaction effect were created for both interaction terms, since understanding interaction terms is difficult.

Figure 2 shows the effect of median closeness to friends interacting with depression on status delinquency (cigarette use). In Figure 2 (see p.44), the independent variable (horizontal

axis or x-axis) is median closeness to friends and the dependent variable is the probability of engagement in cigarette use (vertical axis or y-axis). To produce lines, the mean score of the probability of engagement in cigarette use by depression level was plotted then connected. Parallel lines indicate no interaction. Intersecting lines indicate an interaction. The interaction predictor indicates that depression level strengthens the relationship between median closeness to friends and the probability of engaging in status delinquency (cigarette use). The graph indicates a steady increase for those with mild to moderate depression and major depression. When the respondents have no symptoms of depression there is a steady decrease as the median closeness to friends increases. For those with major depression, the graph shows an increase at a higher rate.

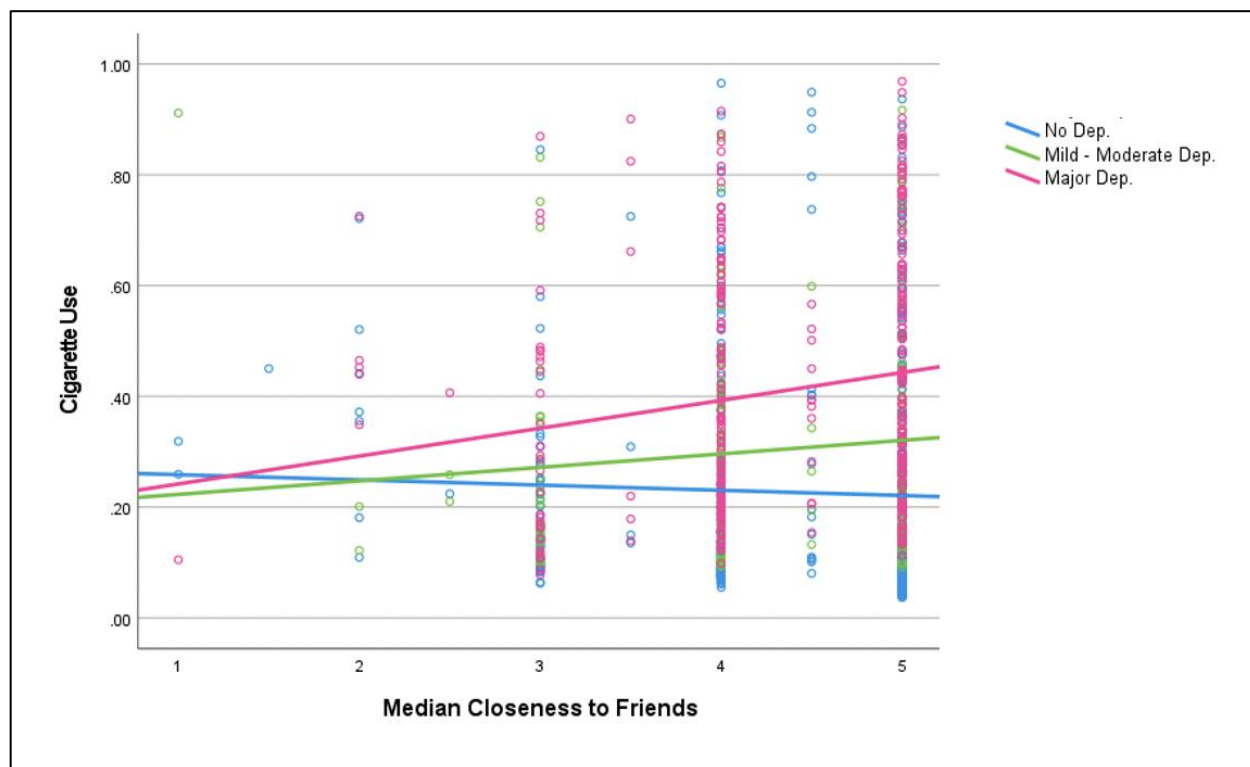


Figure 2: The effect of median closeness to friends interacting with level of depression on status delinquency.

In other words, for the respondents who are not close to their friends and do not show any symptoms of depression, their probability of engaging in cigarette use is at approximately 0.25, but the probability will decrease as the median closeness to friends increases. Conversely, respondents who have major depression and are not close to friends have a probability of engaging in cigarette use of 0.21, and this increases at a high rate as the median closeness to friends increases. Respondents automatically start at a similar probability of engagement in cigarette use, for all levels of depression, but this differs once the median closeness to friends is 3 or higher. In this case, closeness to friends and depression are considered risks factor for status delinquency, more specifically cigarette use. Conversely, closeness to friends alone with no levels of depression is considered a protective factor for cigarette use. The results in Figure 2 show that a strong attachment to friends will result in a higher probability of engagement in cigarette use if the respondent has any symptoms of depression. If the respondent has a strong attachment to friends and no symptoms of depression this results in a lower probability of engagement in cigarette use.

Figure 3 shows the effect of proportion of friends who drink alcohol interacting with depression on status delinquency (cigarette use). In Figure 3 (see p.46), the independent variable (horizontal axis or x-axis) is the proportion of friends who drink alcohol, and the dependent variable is probability of engagement in cigarette use (vertical axis or y-axis). To produce lines, the mean score of the probability of engagement in cigarette use by the level of depression was plotted then connected. Parallel lines indicate no interaction. Intersecting lines indicate an interaction. The interaction predictor indicates that the level of depression strengthens the relationship between proportion of friends who drink alcohol and the probability of engaging in status delinquency (cigarette use). The graph indicates a steady increase for all levels of

depression. For those with major depression, there is still a steady increase, but the slope is not as steep.

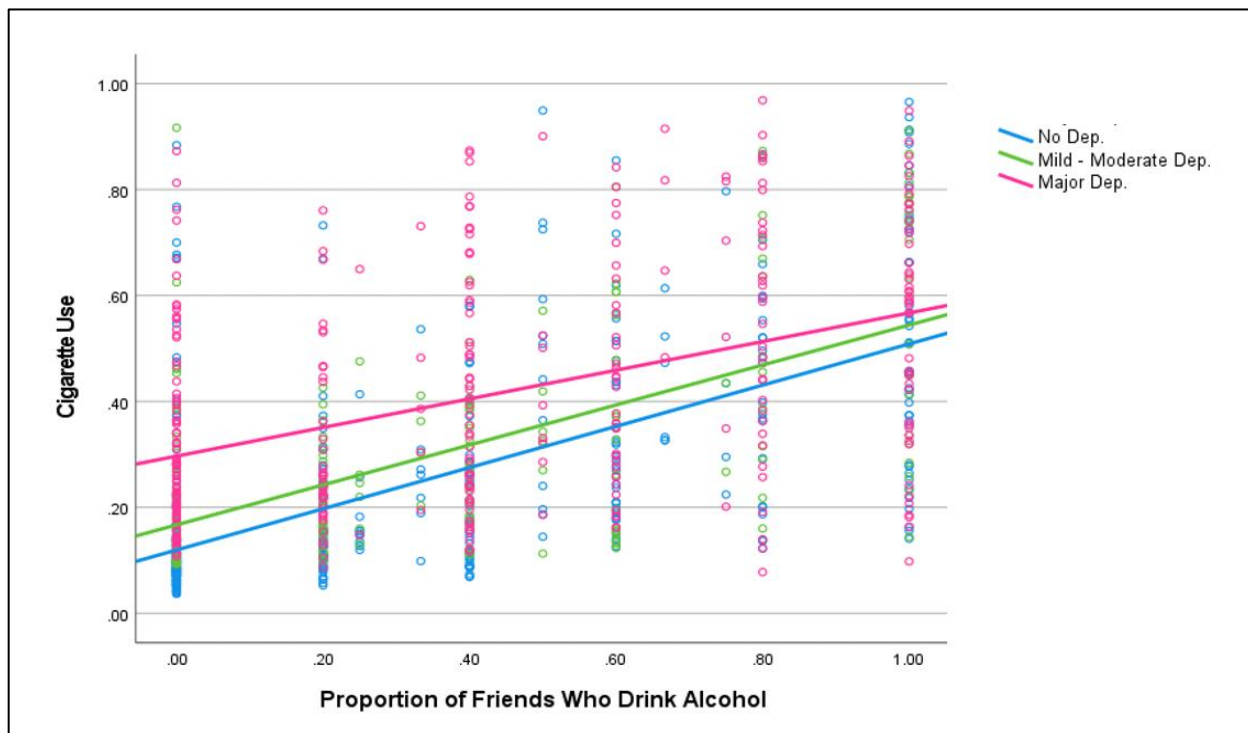


Figure 3: The effect of proportion of friends who drink alcohol interacting with level of depression on status delinquency.

In other words, for the respondents that do not have any friends who drink alcohol and do not show any symptoms of depression, their probability of engaging in cigarette use is at approximately 0.12, but the probability will increase as the proportion of friends who drink alcohol increases. For those respondents, who experience mild to moderate depression and do not have any friends who drink alcohol will have a probability of engaging in cigarette use of 0.17. For the respondents who do not have friends who drink alcohol and show major depression symptoms, have a probability of engaging in cigarette use of 0.30. Respondents automatically start at a higher probability of engagement in cigarette use if they have major depressive

symptoms, and the probability will also increase as the proportion of friends who drink alcohol increases.

Table 6 shows the results of a binary logistic regression modeling the relationship of status delinquency, specifically lifetime alcohol use, on variables associated with depression and social networks. Results did not show any statistically significant interaction effect between social networks and depression when predicting for lifetime alcohol use. However, statistically significant predictors of lifetime alcohol use were friends' acceptance of drug use (1–2 friends, $p < 0.05$) and the proportion of friends who drink alcohol ($p < 0.001$). These two significant predictors had a main effect on lifetime alcohol use. Both statistically significant predictors were positively associated to lifetime alcohol use. With each unit increase in friends' acceptance of drug use (1–2 friends), the odds of status delinquency (lifetime alcohol use) were magnified by 2.22 times. Equally, with each unit increase in proportion of friends who drink alcohol, the odds of status delinquency (lifetime alcohol use) were magnified by 8.13 times.

Conversely, the control variable once again was not statistically significant: age (16 years old or older, $\text{Exp}(B) = 0.51$, $p > 0.05$) and age (15 years old, $\text{Exp}(B) = 0.82$, $p > 0.05$). Depression ($\text{Exp}(B) = 1.02$, $p > 0.05$) was not statistically significant when predicting alcohol use. The following predictors related to social networks were non statistically significant: friends' acceptance of drug use (all 5 friends, $\text{Exp}(B) = 9.96$, $p > 0.05$), friends' acceptance of drug use (3-4 friends, $\text{Exp}(B) = 2.49$, $p > 0.05$), median closeness to friends ($\text{Exp}(B) = 1.09$, $p > 0.05$), friends' acceptance of juvenile delinquency ($\text{Exp}(B) = 1.39$, $p > 0.05$), years known ($\text{Exp}(B) = 1.05$, $p > 0.05$), total number of friends ($\text{Exp}(B) = 0.91$, $p > 0.05$), proportion of friends who smoke cigarettes ($\text{Exp}(B) = 2.17$, $p > 0.05$), and proportion of friends who smoke marijuana ($\text{Exp}(B) = 1.42$, $p > 0.05$). Friends acceptance of juvenile delinquency, cigarette use,

and marijuana use were not related to alcohol use. It was friend's alcohol use and acceptance of drug use that was associated with alcohol use.

Table 6: Binary logistic regression results for status delinquency (lifetime alcohol use; n = 980).

Predictors	B	SE	Exp(B)	p value
Age (3 = 16 years old or older)	-0.67	0.39	0.51	0.0840
Age (2 = 15 years old)	-0.20	0.28	0.82	0.4780
Age (1 = 14 years old)	-	-	-	-
Friends' Acceptance of Drug Use (4 = all 5 friends)	2.30	1.21	9.96	0.0570
Friends' Acceptance of Drug Use (3 = 3 - 4 friends)	0.91	0.63	2.49	0.1500
Friends' Acceptance of Drug Use (2 = 1 - 2 friends)	0.80*	0.33	2.22*	0.0170
Friends' Acceptance of Drug Use (1 = none)	-	-	-	-
Median Closeness to Friends ^a	0.08	0.18	1.09	0.6480
Friends' Acceptance of JD	0.33	0.37	1.39	0.3720
Total Depression Score (0 - 60)	0.02	0.07	1.02	0.8110
Years Known (average in years of 5 friends)	0.05	0.06	1.05	0.4480
Total Number of Friends (0 - 5)	-0.10	0.17	0.91	0.5770
Proportion of Friends Who Smoke Cigarettes	0.77	0.86	2.17	0.3690
Proportion of Friends Who Smoke Marijuana	0.35	0.73	1.42	0.6300
Proportion of Friends Who Drink Alcohol	2.10***	0.59	8.13***	0.0000
Friends' Acceptance of Drug Use (4 = all 5 friends) X Total Depression Score (0 - 60)	-0.08	0.04	0.92	0.0650
Friends' Acceptance of Drug Use (3 = 3 - 4 friends) X Total Depression Score (0 - 60)	-0.05	0.03	0.95	0.0720
Friends' Acceptance of Drug Use (2 = 1 - 2 friends) X Total Depression Score (0 - 60)	-0.03	0.02	0.98	0.1290
Friends' Acceptance of Drug Use (1 = none) X Total Depression Score (0 - 60)	-	-	-	-
Median Closeness to Friends X Total Depression Score (0 - 60)	0.01	0.01	1.01	0.4270
Friends' Acceptance of JD X Total Depression Score (0 - 60)	0.00	0.02	1.00	0.9780
Years Known (average in years of 5 friends) X Total Depression Score (0 - 60)	0.00	0.00	1.00	0.5960
Total Number of Friends (0 - 5) X Total Depression Score (0 - 60)	0.00	0.01	1.00	0.9960
Proportion of Friends Who Smoke Cigarettes X Total Depression Score (0 - 60)	-0.03	0.04	0.97	0.4370
Proportion of Friends Who Smoke Marijuana X Total Depression Score (0 - 60)	0.02	0.03	1.02	0.5590
Proportion of Friends Who Drink Alcohol X Total Depression Score (0 - 60)	-0.01	0.03	1.00	0.8720
Pseudo R-Squared: 0.162				

* p < 0.05, ** p < 0.01, *** p < 0.001

^a Median ranging from 1 = not close to 5 = extremely close

DISCUSSION

One of the main questions of this thesis was: “Is there an interaction effect between social networks and depression on juvenile delinquency?” Results suggest that social networks had a partial interaction effect on depression and juvenile delinquency. Social networks did have an interaction effect on violent juvenile delinquency (involvement in fights), non-violent juvenile delinquency (lifetime drug use), and status delinquency (lifetime alcohol use), but it showed an interaction effect for status delinquency (cigarette use). Two important social network measures, close relationships and having close friends who drink alcohol, enhanced the relationship between depression and lifetime cigarette use. One can conclude that the importance of close relationships and having close friends who drink alcohol may be significant in predicting cigarette use because they provided female adolescents with a social environment that encouraged deviant behaviors such as cigarette use. Adolescents would engage in those behaviors to release feelings of depression most likely caused by acculturation strain.

Regarding the relationship between strains and depression, Hispanic females who indicated having any type of strain related to acculturation, had higher levels of depression, compared to those who did not experience any acculturation strain. Higher levels of acculturation strain were associated with higher levels of depression. These findings partially validate GST, which states stressors can result in negative emotions, depression being one of them (Agnew, 1992). Similarly, this coincides with Jennings, Piquero, Gover, and Perez (2009) findings where Hispanic females reported high levels of depression and responded to strain with a mixture of depression and anger (Broidy & Agnew, 1997). Based on the observations, minority status strain indicated a positive association to depression for Hispanic female adolescents. As mentioned previously, ethnic minority groups have additional stressors related to their social, cultural, and

structural positions in the United States and acculturation stressors such as racial discrimination, prejudice, and language barriers (Ngo & Le, 2007; Copeland-Linder, Lambert, Chen, & Ialongo, 2011). These types of stressors faced by minority adolescents can result in internalizing and/or externalizing symptoms such as depression (Ngo & Le, 2007).

It is important to note that although the results are consistent with GST, GST does not explore sources of strain from the social structure (Frailing & Harper, 2013). Acculturation appears to be a risk factor for depression for Hispanic female adolescents, and this is due to matters involving integration. Moreover, the interactional model of emotion best fits the results because it considers emotions are partially associated to social context.

Friends' acceptance of juvenile delinquency and proportion of friends who drink alcohol had a significant relationship to violent delinquency. Both, friends' acceptance of juvenile delinquency and proportion of friends who drink alcohol were directly positively associated to the involvement in fights. In this case, some forms of social networks are related to an increase in delinquency. Even though having friends who drink alcohol increased the odds of engaging in violent juvenile delinquency, having friends who smoke marijuana or cigarettes was not associated with violent delinquency. This can be explained by several theories such as differential association theory and social learning theory.

Differential association theory mentions that criminal behavior is learned from intimate groups, and it is believed a person becomes delinquent because they acquire attitudes that favor the violation of law (Frailing & Harper, 2013). This explains how interacting with friends who are supportive of alcohol use, cigarette use, and/or marijuana use increases the likelihood of engaging in violent behavior. It also explains how having a high proportion of close friends who engage in status offenses such as drinking alcohol is a risk factor for violent juvenile

delinquency. Adolescents are likely associating with individuals who are engaging in delinquent behaviors and are learning that violent behavior from their personal groups.

Similarly, social learning theory explains how people will continue engaging in certain behaviors depending on the rewards and punishments that follow the action (Frailing & Harper, 2013). In social learning theory, association with delinquent peers is a risk factor for delinquency, not only intensifies it. Social networks specifically friends' acceptance of juvenile delinquency and proportion of friends who drink alcohol were direct risk factors of violent juvenile delinquency for Hispanic females. Conversely, these forms of social networks did not have a conditioning impact for depression and violent delinquency, which is inconsistent with the theoretical model in this thesis.

In addition, when predicting non-violent juvenile delinquency, friends' acceptance of drug use, having close friends who smoke marijuana, and having close friends who drink alcohol were risk factors for lifetime drug use. Females who have friends that support drug use, smoke marijuana, or drink alcohol are more likely to engage in non-violent delinquency. An increase in friends who engage in those types of behavior is associated with an increase in engagement in non-violent delinquency. This is reinforced by the work of Mazerolle and Maahs (2000) who found that when the exposure to delinquent peers was strong; it increased the effect of strain on delinquency. It showed that there were high rates of involvement in delinquency when there were high levels of influence from delinquent peer exposure. Besides the significance of some of the social network predictors as a direct impact on non-violent delinquency, there was no interaction found between social networks and depression when predicting non-violent delinquency.

Status delinquency in the form of lifetime cigarette use was associated to several social network predictors. As previously mentioned, median closeness to friends and total number of friends were directly negatively associated with lifetime cigarette use. As the median closeness to friends and total number of friends increased, the odds of engaging in lifetime cigarette use decreased for Hispanic females. The closer females were to their friends the less likely they were to engage in crime. Similarly, females with a large support system were less likely to engage in cigarette use.

Conversely, having close friends who smoke cigarettes and close friends who drink alcohol were direct risk factors for lifetime cigarette use. As the number of friends who smoke cigarettes and friends who drink alcohol increased, the odds of engaging in lifetime cigarette use increased. This can be attributed to, friends playing an important role on a person's behavior during adolescence because of those friends influence and pressure (Ling, 2005). They help an individual decide what type of activities he or she wants to enroll in. Additionally, they provide emotional support outside the family unit.

Peers have been associated with delinquent behaviors amongst juveniles. The findings concur with Barnes et al.'s (2007) study, where the time spent with peers had a negative effect on males more than females when it came to sexual activity; peer influences had a greater impact on substance abuse. Previous studies have concluded that peers can influence an individual's delinquent behavior. Peers' level of delinquency strongly concurs with the level of delinquency of the adolescent (Paetsch & Bertrand, 1997). This is consistent with the social learning theory (Paetsch & Bertrand, 1997). Individuals learn from the groups that provide more reinforcements, and individuals imitate the same behaviors as the group (Paetsch & Bertrand, 1997). This means having close friends (alters) or ties with those who engage in status delinquency such as cigarette

and alcohol use is a risk factor for egos on status delinquency behavior. Social learning can occur when the individual is associating himself/herself with delinquent peers, which can explain the positive association that proportion of friends who smoke cigarettes and proportion of friends who drink alcohol have with status delinquency.

Overall, based on the results, it is speculated that Hispanic females are either being persuaded by the delinquent friends to engage in different delinquent behaviors, or females might be engaging in these behaviors because they want to feel included and part of the group. Not only can Hispanic females be persuaded by friends to engage in those type of behaviors, but females can also just be learning those behaviors because it is part of their everyday environment.

Closeness to friends and depression had a conditioning impact on status delinquency (cigarette use). The interaction predictor indicated that depression strengthened the relationship between closeness to friends and the probability of engaging in status delinquency (cigarette use). Females who had a close relationship to their friends had a higher probability of smoking cigarettes if their depression was high, when compared to females who did not have any depressive symptoms. Females who had a close relationship to their friends and did not have any depressive symptoms had a lower probability of smoking cigarettes, when compared to those with some type of depressive symptoms. In this case, for those with depressive symptoms, closeness to friends is considered a risk factor for cigarette use.

The results partially contradict the social bonds theory, which mentions that people who have a bond to social institutions such as schools, jobs, peers, and family will refrain from crime and those without a bond will engage in crime (Frailing & Harper, 2013). There are four important elements to the social bond theory: attachment, commitment, involvement, and belief.

For individuals who have a strong attachment, they are affected by what other people think, and their desire for approval stops them from engaging in crime. Individuals with strong commitment will not engage in crime because it will ruin everything they worked for. Those with strong involvement have no time to engage in crime. Lastly, individuals with strong beliefs are those who accept conventional values and view crime as a non-conventional value (Frailing & Harper, 2013). Research on social bonds theory shows that the stronger the bond is to peers, the lower the engagement in crime will be. Oppose to this, findings show that a strong attachment to friends will result in a higher probability of engagement in cigarette use, when the individual has mild to moderate depression or major depression. When females have a strong tie with friends and do not show any signs of depression, then the probability of smoking cigarettes will decrease. Moreover, these findings further expand GST because it does not take in account interaction factors that affect the relationship between strains and juvenile delinquency. Consistent with Moon and Morash's (2017) findings, it is proven that certain factors combined with depression can have an interaction effect to make the relationship significant.

Proportion of friends who drink alcohol and depression also had an interaction effect on status delinquency (cigarette use). The interaction predictor indicated that depression strengthened the relationship between proportion of friends who drink alcohol and the probability of cigarette use. Females who had a higher proportion of friends who drink alcohol, had a higher probability of smoking cigarettes if their depression score was high, when compared to females who did not have any depressive symptoms. In this case, proportion of friends who drink alcohol is a risk factor for cigarette use. Juveniles with friends with major depressive symptoms would start at a higher chance of cigarette use. The probability increased as the number of friends who drink alcohol increased. In other words, generally proportion of friends

who drink alcohol will have a positive impact on cigarette use, but this is so much increased once an individual has depression. All females start off at an already high probability of engaging in cigarette use, but it continues accelerating meaning it is always a higher probability of engaging in cigarette use as the proportion of friends who drink alcohol increases. Nonetheless, those with no depression have a lower probability of engaging in cigarette use, compared to those with major depression.

As previously mentioned, social learning theory and differential association theory can be used to explain how the association with delinquent peers affects the probability females will engage in status delinquency (cigarette use). It is speculated that Hispanic female juveniles can be learning delinquent behaviors from friends, and as the feelings of depression increase, they engage in cigarette smoking to relieve some of those feelings. GST can explain the association between negative emotions, in this case depression, with the probability of engagement in cigarette use (Agnew, 1992; Piquero & Sealock, 2004). Though, it is important to bear in mind, that depression did not have a direct impact on juvenile delinquency for any of the analyses conducted. Consistent with Moon and Morash's (2017) findings, the relationship between depression and juvenile delinquency was not significant unless there was an interaction effect added to the relationship.

Similar to the results for non-violent juvenile delinquency, friends' acceptance of drug use and proportion of friends who drink alcohol were positively associated with status delinquency (lifetime alcohol use). Compared to non-violent delinquency, friends' acceptance of drug use was an important predictor of alcohol use, when 1–2 friends were supportive of drug use. Females with 1-2 friends who were supportive of drug use were more inclined to being involved in alcohol use. Furthermore, Hispanic females with a higher proportion of friends who

drink alcohol were more likely to engage in alcohol use. As previously mentioned, this is supported by the findings of Mazerolle and Maahs (2000). Similar to the findings of other types of delinquency, there was no interaction effect found for social networks and depression when predicting lifetime alcohol use.

CONCLUSION

This research aimed at studying differences in types of delinquency among Hispanic females, applying the GST, and examining social networks as an interaction factor between depression and delinquency. The target population investigated in this study was Hispanic female adolescents because of the scarcity of research on this topic. The results highlight how social networks and depression can be risk factors and lead to juvenile delinquency or protective factors and dissuade Hispanic females from engaging in crime.

Regarding the research question, “Does depression mediate the relationship between strain and juvenile delinquency?” The findings indicate that acculturation, a dimension of minority strain, was an important predictor of depression; however, depression was not directly associated to juvenile delinquency. Depression did not have a direct effect (i.e., main effect) on any type of juvenile delinquency (violent, non-violent, and status delinquency) studied. It is believed that having to choose between different cultural values and adapt to new customs, causes strain on Hispanic females and it results in depression.

As to the question, “Is there an interaction effect between social networks and depression on juvenile delinquency?” The findings indicated that social networks had a partial interaction effect on depression and juvenile delinquency, depending on the aspect of social networks and the type of juvenile delinquency being examined. Nevertheless, depression paired with social networks strengthen the association to status delinquency which partially supported the hypothesis. Social networks did not have an interaction effect on violent juvenile delinquency (involvement in fights), non-violent juvenile delinquency (lifetime drug use), and status delinquency (lifetime alcohol use), but it showed an interaction effect for status delinquency (cigarette use). Close friendships strengthened the relationship between depression and lifetime

cigarette use. Moreover, having close friends who drink alcohol enhanced the relationship between depression and cigarette use. It was hypothesized that peers may have provided female adolescents with a social environment that encouraged deviant behaviors such as cigarette use. Adolescents would engage in those behaviors to release feelings of depression.

In conclusion, this study provided some support for the use of GST in explaining how Hispanic females become delinquent. It also demonstrated the importance of including culturally related and socially structured strains such as acculturation. Moreover, findings advanced the empirical development of Moon and Morash's (2017) explanation for conditioning factors on the strain and juvenile delinquency relationship.

Policy Implications

As previous research has stated, Hispanic adolescents have a higher percentage of involvement in delinquency than other individuals (McNulty & Bellair, 2003). Creating a solution to reduce the involvement in juvenile delinquency for Hispanic females, leads to the acknowledgement of the need to implement programs that will focus and benefit the Hispanic population. This study recommends schools to incorporate programs in the educational curriculum based on ways to cope with acculturation and depression, promote multiculturalism, and refrain from engaging in cigarette use, drug use, and underage drinking.

Schools should apply a curriculum that promotes multiculturalism for middle school and high school students. For example, *Facing History and Ourselves* (FHAO), a non-profit organization that provides students and teachers with historical examples on racism, social injustice, and prejudice (Kam, Cleveland, & Hecht, 2010). Students who have been exposed to the curriculum created by FHAO have shown fewer fighting behaviors, less racist attitudes, and maturity. This curriculum promotes positive interpersonal relationships, which can help decrease

the perception of discrimination for some students by their peers (Kam, Cleveland, & Hecht, 2010). Developing a cultural school group that encourages community participation and focuses on topics related to perceived discrimination, acculturation stress, alcohol use, drug use might be also helpful for Hispanic females.

Another helpful program that could be incorporated into school curriculum is *Break Free from Depression* (Suicide Prevention Resource Center, 2012). This curriculum was developed by Boston Children's Hospital Neighborhood Partnerships and designed to increase awareness about depression. Students learn skills to recognize symptoms on themselves or their friends and how to find help (Suicide Prevention Resource Center, 2012). This program can assist adolescents in learning the appropriate route to coping with depression rather than engaging in delinquency.

Moreover, research shows that adolescents engage in cigarette smoking, underage drinking, or drug use because of several risk factors such as low self-esteem, low self-control, and social influences from family members, peers, or social media (Zins, Wagner, & Maher, 1985). Providing positive social environments can also help individuals refrain from engaging in delinquent behaviors. To refrain adolescents from engaging in delinquent behaviors, schools should implement programs that promote positive social interactions such as *Juntos* and *Botvin's Life Skills Training Program*.

Juntos is a program that encourages Hispanic parents to interact with their children to increase academic success (Behnke & Kelly, 2011). The program increases positive family engagement, sense of belonging among Hispanic students and families in school as well as in the community, and it increases student success by improving school attendance and grades (Behnke & Kelly, 2011). Although the program is meant to decrease the rates of Hispanic youth dropping

out of school and promotes interest in higher education, it encourages communication between parents, school personnel, and adolescents which is beneficial in discouraging adolescents from engaging in delinquent behaviors.

Furthermore, *Botvin's Life Skills Training Program* has three major components that are meant to deter adolescents from engaging in delinquent behaviors: personal self-management skills, social skills, and drug-related information (Botvin & Griffin, 2004). The personal self-management skills and social skills are designed to decrease the motivation to use drugs, alcohol, or cigarettes and the vulnerability to social influences that support those behaviors. On the other hand, the drug-related information component promotes drug resistance skills and antidrug attitudes. Research shows that after the implementation of *Botvin's Life Skills Training Program* there has been a reduction in smoking, alcohol use, and marijuana use for most of the students in the program (Botvin & Griffin, 2004). As already mentioned more programs that involve positive social interactions and that teach adolescents on how to refrain from delinquent behaviors and why it is beneficial for them to avoid these behaviors should be implemented in high schools.

Acknowledging that cultural diversity requires different types of preventive programs for adolescents based on the stressors and emotions that can lead them to delinquency. As well as incorporating different curriculums that provide positive social interactions with family and friends and letting adolescent know that there are programs that can assist them in coping with certain emotions and stressors; can decrease the likelihood of engagement in juvenile delinquency.

Limitations

Limitations of the research should be considered when interpreting the results of this

study. First, several widely used variables to measure strains had a massive number of missing values which threaten the statistical power and validity of the results. Variables that could have been interesting to study such as discrimination and other dimensions of acculturation were not included in the study because of the missing data. As mentioned in the study, incorporating those variables into the analyses would cause a drastic decrease in sample size ($n = 67$) which can increase the margin of error. Instead, those variables were excluded from the analyses, but it did impact the type of statistical analysis performed.

Second, working with secondary data caused the unavailability of variables that could have measured different negative emotions. The study was restricted to using only one measure of negative emotions, depression, which has already been widely examined. Third, the data analyzed in the study had a large sample size, but it was an old dataset.

Fourth, the use of secondary data analysis raises concerns in measurement validity and reliability. A construct validity problem can occur when the definition of a construct in the new theoretical model used is different from the definition used by the individuals who collected the data (Neuman, 2011). Another validity problem can occur because of the inability to control how someone else collects the data. It is assumed the individual who conducted the data collection did it accurately, but systematic errors can emerge due to sloppiness, disorganization, or typographical errors. Equivalence reliability can also be a problem when conducting secondary data analysis. For instance, measuring crime across a nation relies on police departments to provide accurate information, but the measure may lose equivalence reliability due to sloppy bookkeeping (Kerlinger & Lee, 2000; Neuman, 2011). Furthermore, an important problem with cross-sectional studies is that it is difficult to derive a causal relationship because of the one-time measurement (Mann, 2003).

Recommendations

Based on the limitations there are some recommendations that should be considered. The schematizing and using more items measuring strains and negative emotions such as discrimination, educational strain, anger, anxiety, and frustration is recommended. Future research should include familial structure and membership as a measurement of social networks to further understand the mechanism underlying moderators and/or interaction effects on the relationship between strain and juvenile delinquency relationship. Moreover, future researchers should preferably engage in primary data collection or use a more recent dataset because of the measurement validity (e.g., construct validity) concerns that may arise from using secondary data. Lastly, a larger sample size should be considered when trying to replicate this study to have a greater statistical power ($1 - \beta$) for the mediation analysis, and to allow a path analytic approach of the entire empirical model involving both mediator and moderator/interaction effects.

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APPENDIX A

Center for Epidemiologic Studies Depression Scale (CES-D), NIMH

Below is a list of the ways you might have felt or behaved. Mark how often you have felt this way during the past week.

	During the Past Week			
	Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. I did not feel like eating; my appetite was poor.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I felt that I could not shake off the blues, even with help from my family or friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I felt I was just as good as other people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. I had trouble keeping my mind on what I was doing.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I felt depressed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I felt that everything I did was an effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. I felt hopeful about the future.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. I thought my life had been a failure.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I felt fearful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. My sleep was restless.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. I was happy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. I talked less than usual.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. I felt lonely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. People were unfriendly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. I enjoyed life.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. I had crying spells.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. I felt sad.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. I felt that people disliked me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. I could not get "going".	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

SCORING: zero for answers in the first column, 1 for answers in the second column, 2 for answers in the third column, 3 for answers in the fourth column. The scoring of positive items (4, 8, 12, and 16) is reversed. Possible range of scores is zero to 60, with the higher scores indicating the presence of more symptomatology.

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- Rape Co-Offending and Its Effects on Victim Injury, 2016
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- Examining the Distance to Victimization for Homicides, 2018

PRESENTATIONS

- Andrew Hilburn, Thomas Zawisza, and Lesly Hernandez. “Oh the Places You’ll Go: Examining the Directional Bias of Crime.” Texas A&M University System 13th Annual Pathways Student Research Symposium, Prairie View, Texas, November 2016.

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