
# THE IMPACT OF SOCIAL DISORGANISATION ON DRUG USE AMONG YOUTH FROM A GENDER PERSPECTIVE

## ARE BOYS AND GIRLS AFFECTED TO THE SAME EXTENT BY RISK FACTORS OF SOCIAL DISORGANISATION?

***ANNIKA RIEKWEL***

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Malmö University
Faculty of Health and Society
205 06 Malmö

# THE IMPACT OF SOCIAL DISORGANISATION ON DRUG USE AMONG YOUTH FROM A GENDER PERSPECTIVE

## ARE BOYS AND GIRLS AFFECTED TO THE SAME EXTENT BY RISK FACTORS OF SOCIAL DISORGANISATION?

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Although the theory of social disorganisation does emphasise the influences neighbourhood dynamics have on youth, it does not consider if the risk factors of mobility, delinquent friends, ethnicity, and low socioeconomic factors, affect boys and girls in similar ways. The purpose and aim of this study is to contribute with gender-based research to the field of criminology that can be used when developing interventions among juveniles with delinquent behaviour. Delinquent behaviour was in the study delimited to drug use. The study used bivariate analysis, logistic regression and hierarchy regression as the method of analyses. The results showed that there are significant similarities and differences between girls and boys. It was possible to see significant similarities between boys and girls in relation to delinquent friends and drug use. Mobility was an important variable for girls in relation to drug use, but not for boys. Mobility affected girls in the opposite direction of what was expected according to theory of social disorganisation: low amount of mobility increased the risk for drug use significantly among girls.

*Keywords*: *Social Disorganisation, Gender, Risk Factors, Drug Use, Juvenile Delinquency, Delinquent Behaviour*

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# 1.0 INTRODUCTION

During the last decades there has been an increased interest in women's criminality, it remains however yet relatively unexplored in criminological research (Giordano and Cernkovich, 1997; Obediallah et al., 2004). Consequently, much criminological research and theories have contributed to a hegemonistic understanding of criminality when using male delinquency as a standardised measurement (Daly and Chesney-Lind, 1988; Jacob, 2006; Belknap, 2007; Miller and Mullins, 2009; Zahn and Browne, 2009). Breaking this trend of gender blindness is significant and imperative in the progress of criminological theories and research.

It has been acknowledged for decades that neighbourhood contexts play an important role in the development of youth delinquency. The traditional theory of social disorganisation by Clifford R. Shaw and Henry D. McKay (1942; 1931) has often been referred to as a way of explaining alterations of crime rates between neighbourhoods (e.g., Shaw and McKay, 1942; Sampson, Stephen, and Earls, 1997; Ingoldsby and Shaw, 2002; Sampson, 2006) Residential areas with higher rates of delinquency have for instance been stated to differ from neighbourhoods with lower delinquency rates because of their organisational deficiency (Shaw and McKay, 1942; Leventhal and Brooks-Gunn, 2000; Sampson, Morenoff, and Gannon-Rowley, 2002).

Shaw and McKay (1942) observed that delinquency rates in criminally charged residential areas were rather stable over time. They noticed that criminal rates did not decrease even when highly delinquent residents moved out of the area. Similarly, when crime-prone residents moved into neighbourhoods with lower criminal rates, the criminal rates remained about the same. The study of criminal stability led to the conclusion that delinquency was not related to individuals per se but was rather deduced through criminal values transferred from one generation to another among youth in daily activities.

The focus on male delinquents become eminent in writings such as *The Jack-Roller: A Delinquent Boy's Own Story* (Shaw, 1930) and *Brothers in crime* (Shaw, 1938; Shaw and McKay, 1972). Importantly, their study of the *Distribution of Male Juvenile Delinquency in Chicago* (Shaw and McKay, 1942) focuses only on male delinquents. Even if social disorganisation theory emphasises the influences neighbourhood dynamics has on youth, it does not consider the influence of gender. Gender blindness is evident the gender neutrality in concepts used, such as "residents", and homogeneity in the term "youth" - even though females have been excluded from their research.

Risk factors of juvenile delinquency stated in social disorganisation theory have been established to differ in the exhibited criminal behaviour between girls and boys (Steketee, Junger and Junger-Tas, 2013). According to Peterson (2002), risk factors of neighbourhood mobility resulted in an increased delinquency among girls. Even though such discrepancies have been established (Fagan and Wright, 2012; Cooper and Smith, 2011; O'Neil, 2020), a gender perspective on juvenile delinquency has nevertheless been predominantly unexplored (Pettersson, 2021).

Learning more about what risk factors lead to juvenile delinquency is important since it could be used to prevent early onset of delinquent behaviour (Osher, Quinn, Poirier, & Rutherford, 2003). Preventing delinquent behaviour through early interventions has been established as effective on both an individual level (Loeber, Farrington, & Petechuk, 2003) and a societal level (Cohen and Cohen, 2004; Greenwood, 2008; Welsh et al., 2008; Zagar, Grove and Busch, 2013) – which illuminates the degree of significance research from different levels.

### 1.1 Purpose, aim and research hypothesis

The purpose of this study is to contribute with complementary gender-based research to the field of criminology. The aim of this research is to generate research that can be used in the design of equally successful interventions for juveniles. To do this, following hypotheses will be tested: *(Ho) There is no gender invariance in how risk factors in social disorganisation theory affects drug use among boys and girls.* If the null hypothesis is false the counter hypothesis, *(Ha) There is a gender invariance in how risk factors in social disorganisation theory affects drug use among boys and girls*, will be accepted.

# 2.0 BACKGROUND AND THEORY

In the beginning of the 20th century a major shift in the field of criminology took place; Darwinistic reasoning where criminals were to be considered as distinguishable because of biological inferiority, was reconsidered (Lilly, Cullen and Ball, 2018). Instead, due to major societal changes, theories emphasising environmental factors were taken into consideration.

Between the years 1833 and 1910 a mass immigration had taken place in Chicago, resulting in an increase of almost two million citizens in the town (Pale, 1981). The extensive increase of population entailed necessary modifications in criminological theories to address the contemporary challenges. The perception of criminals was now linked to victimisation of poor living conditions, rather than biological inferiority.

The new angle of approach infused new optimism regarding crime and criminality. It was hypothesised that if the process leading to deviant behaviour was something happening outside of the individual, successful interventions would be possible to create and implement. Studies of how city life could have a negative impact on human behaviour were developed, and it was in this context that the theory of social disorganisation was created.

### 2.1 Shaw and McKay's juvenile delinquency theory

Social disorganisation theory was originally founded by Wilson Thomas (1966) when researching the effects mass immigration had in Chicago during the beginning of the 20th century. He noted that social rules of behaviour had weakened within socially disorganised neighbourhoods. Prominent features, such as residentials' mobility, heterogeneity, economic deprivation, and weak institutionalisation, were noted as typical characteristics of socially disorganised neighbourhoods. Thomas's (1966) theory inspired, among others, Robert E. Park and Ernes Burgess's (1967) in their development of urban ecology theory. Urban ecology theory came to incorporate the claim of things not happening by chance

but followed an evolutionary pattern, stated in the ecological system theory. Park and Burgess (1967) urban ecology theory divided Chicago into five different zones based on resident's spatial distribution, out of which zone II became particularly interesting because of having the highest crime rates in the city.

Residents living in zone II were immigrants who lived in deteriorating tenements in neighbourhoods consisting of slums and ghettos. Since living accommodations were poor, it made inhabitants want to move to better neighbourhoods as soon as possible. The constant mobility into and out of zone II made it difficult for institutions (such as schools, churches, families, etc.) to internalise shared values and moral stands among residents. It was theorised that the failure of incorporating shared societal principles led to extensive disorder and high criminal rates. Characteristics for socially disorganised areas therefore came to be defined by the social structure in zones II: mobility, poverty, ethnic hegemony, and high criminal rates (Kornhauser 1978; Bryne and Samspon 1986; Bursik 1982).

The work of Park and Burgess (1967) inspired Clifford R. Shaw and Henry D. McKay's (1931) social disorganisation theory on juvenile delinquency. Shaw and McKay (1942) emphasised socioeconomic status (SES) as a fundamental factor in the development of disorganisation in residential areas. Social settings are in this way emphasised as having a great impact on residents' objective and behaviour in socially acceptable ways. Individuals with a low SES may turn to alternative solutions, such as crime and delinquency.

Indeed, according to Shaw and McKay (1942) crime rates vary within cities in a territorial way since social and economic differences are noticed in the city´s different residential areas. The development of criminal groups is stated to form through the adaptation of these alternative solutions by internalising a special code of behaviour in which society's cultural and moral values are excluded.

Middle class citizens are stressed as being law abiding residents since they share a unitary set of values and behavioural patterns. The way in which unitaryness is developed is - according to Shaw and McKay (1931) - through institutions and voluntary associations. Children who live in neighbourhoods with low SES are thought to be exposed to a versatility of values and behaviours - making the internalisation of conventional values and behaviours more difficult. The code of behaviour developed in these residential areas was passed on from one generation to another, through daily activities and socialisation among youth and was equated to the development of criminal culture (Shaw and McKay, 1931).

Poor living conditions are thus stated as the basis for the development of criminal culture, which also is part of Shaw and McKay's (1931) hypothesis of why neighbourhoods with high delinquency rates also display stability over time. It was noted in Saw and McKay's (1931) observations that crime levels within neighbourhoods stayed rather stable even when the area's most crime-prone residents moved out. It was also noted that when crime-prone residents moved into areas with lower criminal rates, the low crime rates remained the same in their new neighbourhood. Shaw and McKay (1931) stressed that these crime-prone residents did in fact acclimate to the residential area's group behaviour, which is why new values were adopted, and old values replaced.

## 2.2 Female delinquency and gender in criminological theories

According to Cesare Lombroso (1920), delinquency can be linked to evolutionary theories and the uneven development of groups in society. Lombroso (1920) proposed that certain groups of people were more developed than others, such as adults being more advanced than children, whites more advanced than non-whites, and men being more advanced than women.

Lombroso´s book *The Female Offender* (1920), has often been described as one of the first attempts to explain female delinquency. Here, women were profiled (among other things) as having an underdeveloped femininity and moral sophistication. Since Lombroso, one of the most influential periods for understanding female delinquency has surfaced through gender theories established by the second wave of the women's movement and the women's emancipation during the 1970s (Lilly, Cullen and Ball, 2018).

During the late 1960s and early 1970s a new emphasis on political, social, and economic inequality between women and men took place pushing for equal rights for women and men. The pursuit of gender equality stressed that women should have equal opportunities to men: who were seen as the embodiment of freedom and independence. Such efforts led to a changing position for women in society as they were introduced to the labour market.

It was through women's emancipation that earlier assumptions on female delinquency came into question - especially in relation to the gender gap in criminality (Adler, 1975; Bruck, 1975; Deming, 1977; Nettler, 1974; Rosenblatt and Greenland, 1974; Steffensmeier, 1980).

Hitherto, it had been theorised that the gender gap between the sexes was due to men having more opportunities for delinquency than women (Adler, 1975). Adler (1975) thought that women would develop behavioural similarities to men and become more greedy and violent, which would in turn increase their crime propensity (Adler, 1975; Bruck, 1975; Deming, 1977; Nettler, 1974; Rosenblatt and Greenland, 1974). It was therefore anticipated that when the restrictions on women were lifted and they were introduced to the labour market and the same environments as men, the gender gap would decrease and eventually disappear. Increased opportunities and similar environmental factors did however not erase the gender gap between the sexes as predicted, which indicated that more complex theories were needed to understand the differences between male and female delinquency (Steffensmeier, 1980).

## 2.3 Previous research

According to Fagan and Wright (2012), neighbourhood and social structures have different effects on girls and are not always predictable according to social disorganisation theory. Differences between male and female delinquency can for instance be exemplified with homicide rates in the United States. Between 1980 and 2008, men were responsible for 89.5 % of homicides and women for merely 10.5 % (Cooper and Smith, 2011).

Gender differences in homicidal behaviour is theorised by Olge, Maier-Katkin, and Bernard (1995) to be an outcome of social psychological behaviour among female and male in relation to their contextual factors. Females are described as mostly experiencing emotional stress factors in contrast to men who killed out of

the need of gaining control over a situation. Differences between male and female delinquents have also been noted in O'Neil´s (2020) research on the gender gap in criminal statistics. Here, girls were found to be more empathetic than boys in preadolescence and adolescent developmental stages. Also, significant differences between girls and boys were noticed in the amount of peer pressure they were subjected to in social settings (Khan, 2018).

Some studies have established that social influences should be perceived as risk factors in the development of delinquent behaviour (Osgood & Chambers, 2000; Bursik & Webb, 1982; Sampson, Stephen, and Earls, 1997; Sampson and Groves, 1989; Elliott et al., 1996; Meier et al., 2008; Molnar et al., 2008; Sampson, 1997; Simons et al., 2005; Van Horn et al., 2007). Other research results have found these results to lack statistical significance. It is argued that contextual factors might not be affecting crime development among youth directly (Beyers et al., 2003; Bernburg and Thorlindsson, 2007; Maimon and Browning, 2010; Sampson et al., 2005).

Research has been criticised for using census data which has not shown significant associations between youth delinquency as a direct result of structural features (ibid.). How the neighbourhood's social processes have been affected as a direct result of control mechanisms has also been questioned (Elliott et al., 1996; Rankin and Quane, 2002). E.g., according to Truccos´s et al. (2014) longitudinal research, high levels of neighbourhood disadvantage was associated with high levels of alcohol use, which over time increased the exposure to delinquent peers and youth delinquency.

The direct impact neighbourhoods have on youth delinquency hasin some studies been established as being quite small. Less than 10 % have been confirmed because of inconsistent outcomes (Gottfredson, McNeil and Gottfredson, 1991; Elliott et al., 1996). According to Leventhal and Brooks-Gunn (2000) such contradicting research results should be recognized as an indication of complex and multifaceted neighbourhood processes in relation to criminal development.

# 3.0 RESEARCH DESIGN AND METHODOLOGY

This paper's research question, aim, and purpose were used as guidelines in the selection process of data. It was therefore essential to gather data which could enable a quantitative statistical analysis between girls and boys. The aim and purpose involved obtaining generalisable results, which required a sufficiently large sample data which was collected in a generalisable way. Based on the principle of suitability, secondary data was chosen because of the narrow timeline and the limited resources at the time of this study. Thus, there were however certain criteria that needed to be met in the selection process: quantitative and generalisable data on the operationalised risk factors for delinquency stated in Shaw and McKay’s (1931) hypothesis of juvenile delinquency in social disorganisation.

## 3.1 Selection process and material

Secondary data that was accessible and appropriate was the study by Boris Orth and Jürgen Töppich (2011) on *The Drug Affinity of Young People in the Federal*

*Republic of Germany.* Orth and Töppich's (2011) data were considered appropriate since the number of participants (5001) was large enough and generalisable. The generalisability was noted in their selection process, which was done with a multistage random sampling system stratified on gender within the age range of 12 to 25. The research was based on telephone sampling systems conducted by Computer Assisted Interviews (CATI). The Working Group for Market and Social Research Institute (ADM) was used for the telephone sampling system. The study had three main topics, drug use, alcohol consumption, smoking among youth, with a total of 683 variables (Orth and Töppich, 2011). After analysing the variables (questions and answers) it became evident that the material was suitable to the purpose of this research.

## 3.2 Operationalisation of concepts

The original model of Shaw and McKay's (1931;1942) social disorganisation theory was structured in a way that followed contemporary social and societal structures in 1940s Chicago. Their theory stressed that lower SES was related to ethnic heterogeneity, residential mobility, and a less unified value system than neighbourhoods with lower crime rates. The reason why criminality was developed and nourished within residential areas was hypothesised to be connected to the development of delinquent culture among youth. It was reasoned that daily the activities and interactions among youth was how delinquent culture was passed on from one generation to another and keeping delinquency rates stable over time. Risk factors for social disorganisation all revolved around neighbourhoods: in Chicago during the 1940s the people you socialised the most with lived within a close physical distance

Since Shaw and McKay (1931; 1942) developed their theory on juvenile delinquency, society has undergone a technological revolution: it is no longer necessary living close to people with whom you have the closest relationship to. According to Sampson (2012) the technical progress has created a new kind of socialising - the digital society - adding a new dimension to our daily activities and interactions. Indeed, today you may have created your own digital society through social media where your most influential friends may be people you have never met in real life. E.g., it is possible to socialise with another person living on the other side of the world instead of the people in your immediate (physical) surroundings. It is therefore argued that the use of residential areas in contemporary social disorganisation research is a misperception of the contemporary society, residential areas were therefore excluded as a measurement of social disorganisation in this study.

**Delinquent Friends**

According to Shaw and McKay's (1931) having friends who are criminals would heightened the odds of developing delinquent behaviour. Delinquent friends were equated with drug use in this study. It was theorised that having friends who used drugs (i.e., delinquent friends) increased the odds of drug use among the respondents. High values corresponded to having delinquent friends and low values to not having delinquent friends (see table 1).

*Table 1. Coding of the answer alternatives to the question on the number of delinquent fiends.*

| **Delinquent friends** | |
|---|---|
| **Answer alternatives** | **Value** |
| Not specified | *sys.miss* |
| I don't know | *sys.miss* |
| Nobody | *0* |
| A few | *1* |
| About half | *2* |
| The most | *3* |
| All | *4* |

System missing was used to exclude answer alternatives which were insignificant for the study. The numbers 0 to 4 are the continuous coding of how common delinquent friends were to the respondent.

**Gender**

The independent variable of gender is not part of the original theory of social disorganisation by Shaw and McKay (1931; 1942). Gender was added to this study so that testing the hypothesis would be possible. Since boys are reported to adopt delinquent behaviour more frequently than girls (O'Neil, 2020; Broid and Agnew, 1997; Daily and Chesney-Lind, 1988; Lauritsen, Heimer and Lynch, 2009), male respondents were coded as 1 and girls as 0.

**Mobility**

According to social disorganisation theory, mobility contributes to disorganisation (Shaw and McKay, 1931; 1942). During the operationalisation of mobility, it was reasoned that being an immigrant did not necessarily indicate mobility in our contemporary society (Alba, 2005). A way of measuring mobility among respondents was derived from the language spoken in the household (ibid.). Respondents who spoke German were considered as being more integrated in the German society, which would indicate low amount of mobility (ibid.). Respondents who answered "German" were thus coded as 0, and other languages spoken in the household were coded as 1, since mobility is stated as a risk factor of social disorganisation. Answer alternatives "does not apply", "not specified", and "I don't know" were coded as system missing.

**Ethnicity**

According to social disorganisation theory (Shaw and McKay, 1931; 1942) immigrants have a higher risk of being exposed to social disorganisation. To measure ethnicity, question on the respondent's citizenship was used. The answer alternatives here were "yes" and "no" - in relation to having a German citizenship. Respondents who answered "no" were coded as 1 since it is perceived as having a higher risk of social disorganisation, and "yes" was coded to 0.

**Socioeconomic Status**

Low SES is a focal point in the development of social disorganisation since it is stressed as a generator of poor living conditions (Shaw and McKay, 1931; 1942). SES was measured through professional qualifications, current activity, and the number of computers in the household.

Questions on the professional qualifications of the respondent´s mother as well as the father were included with the answer alternatives “no degree”, “skilled worker or complementing apprentice”, “technical school or master/technician”, “high school diploma”, “university/college degree”, and “miscellaneous”. The answers were coded dichotomously: it was reasoned that “no degree” corresponded to a highest risk factor since it corresponded to a low SES. It was therefore coded with the higher value of 2, remaining response options corresponded to high SES and were thus coded with the lower value of 1.

Questions on the current activity among the respondents’ mother, father and the respondent themself with answer alternatives “employed”, “unemployed”, “exclusively housewife”, “retired”, “student”, “deceased”, “retraining”, “parental leave”, and “other” were included. The answers were coded dichotomously, it was reasoned that “unemployed” indicated a higher risk of having low SES that other response options and was therefore coded with the value of 2, the other answer alternatives were coded as 1.

The number of computers in the household was included since the number of computers in the household could be used as a high low SES indictor. The answer options were “none”, “one”, and “more than one”. Answers were coded dichotomously. It was reasoned that “none” was the highest risk factor low SES and was therefore coded with the value of 2, the other answer alternatives were coded as 1.

Every question on SES had the answer alternatives “not specified” and “I don’t know”. Since these options did not add any valuable information to this study’s purpose, they were coded as system missing, and thus excluded from the data before and SES index was created. The variable used was a count of the number of low SES markers for each individual, ranging from 0 (none) to 6 (all).

*Table 2. Three questions were used in the measurement of SES among the respondents regarding their highest professional qualifications, current activity, and the ownership of computers.*

**Socioeconomic Status**

| **Highest professional qualifications** | | **Current Activity** | | **Number of Computers owned in the family** | |
|---|---|---|---|---|---|
| **Answer alternatives** | **Value** | **Answer alternatives** | **Value** | **Answer alternatives** | **Value** |
| *Not specified* | *sys.miss* | *Not specified* | *sys.miss* | *Not specified* | *sys.miss* |
| *I don't know* | *sys.miss* | *I don't know* | *sys.miss* | *I don't know* | *sys.miss* |
| *No degree* | *2* | *Employed* | *1* | *None* | *2* |
| *Skilled worker or completed apprentice* | *1* | *Exclusively housewife* | *2* | *One* | *1* |
| *Technical school or master/technician* | *1* | *Unemployed* | *2* | *More than one* | *1* |
| *High school diploma* | *1* | *Retired* | *1* | | |
| *University/college degree* | *1* | *Student* | *1* | | |
| *Miscellaneous* | *1* | *Deceased* | *2* | | |
| | | *Retraining* | *1* | | |
| | | *Parental leave* | *1* | | |
| | | *Other* | *1* | | |

*The answer alternatives were coded dichotomously.*
*The value 2 corresponds to low SES, the value 1 corresponds to high SES.*

## 3.3 Analytical strategy

SPSS was used for conducting univariate analyses and various bivariate analyses between the independent variables and the dependent variable. Bivariate analyses were necessary so that separate analyses between independent variables and the dependent variable could be made. By doing this, it was possible to check for gender differences in relation to independent variables and the dependent variable. To see if the association was statistically significant, Chi2 tests and point-biserial correlations were applied.

Initially it was intended to use a multiple linear regression analysis - since the dependent variable of drug use was continuous. However, when analysing the normal distribution of drug use it showed an extreme skewness (3.323) which was statistically significant at <.001 -. The skewness was due to the vast majority of respondents having taken either Marijuana or Ecstasy.

The number of respondents who had tried Amphetamine/Stimulants, LSD, Cocaine, Crack, were so small that a binary coding of the dependent variable was reasoned as a better choice since it did not make sense to use all drugs (see table 3).

*Table 3 - Drugs respondents had tried based on girls and boys, as well as girls and boys as a total amount.*

**Drug Use**

| **Drugs** | **Girls** | **Boys** | **Total** |
|---|---|---|---|
| No drug use | 77.9 % | 69.4 % | 73.6 % |
| Marijuana/Hash | 19.3 % | 24.4 % | 21.9 % |
| Ecstasy | 1.3 % | 3.3 % | 2.3 % |
| Amphetamine/Stimulants | .7 % | 1.2 % | .9 % |
| LSD | .5 % | 1.0 % | .7 % |
| Cocaine | .3 % | .6 % | .5 % |
| Crack | .0 % | .2 % | .1 % |

*The table displays the prevalence of drug use among girls, boys, and the total drug use when boys and girls are combined. The results are distributed on seven drugs that were included in the survey.*

The dependent variable was coded to a binary variable where it would be possible to detect if a respondent had or had not used drugs. By doing so, a logistic regression analysis was conducted instead of a linear regression.

SPSS was used for the logistic regression analysis. After creating the indexes so that each independent variable and dependent variable could be measured, three regression analyses were made. In the first model, girls and boys were handled as one variable (gender) to see if there was significant association between the independent variables and drug use. All variables (SES, mobility, delinquent friends, ethnicity, and gender) were entered simultaneously into the equation in the first block.

A second model of the logistic regression was then done to see if there were any significant associations between the independent variables and drug use based on gender. To do this, gender was not entered simultaneously with the other variables in the equation. By doing so, it was possible to see how the association between SES, mobility, delinquent friends, and ethnicity was distributed between girls and boys.

A third regression model, hierarchical regression, was conducted to determine if the gender differences from previous regression models, were significantly different. data were considered appropriate since the number of participants (5001) was large enough and generalisable.

### 3.4 Validity and reliability

By the use of secondary data, it was possible to use a large dataset (5001 participants) in this research. Since large samples are more representative than smaller samples, it generates substantial weight of validity (Smith et al., 2011; Smith, 2008). The use of secondary data does however involve methodological limitations: while quantitative research generates generalisable results, it fails to detect underlying structures that only qualitative data can detect.

Secondary data does to an extent have a limited transparency on the original data since original survey research seldom uses all collected data in their results. Data

that for one reason or another has been excluded to fit the original research questions could have provided different answers or perspectives for a third party (Heaton, 2008; Smith, 2008). Used data might have for instance been redefined so that it would fit the main purpose of this research. Since it was not possible for the present author to take part of the reasoning behind the questions and answer alternatives, the questions and answer alternatives used in the present research might to some extents have been misunderstood or misused because of knowledge gaps. However, secondary data does ensure replicability since it has a greater transparency of the procedures used, which enables validity and reliability testing in a more comprehensive way in comparison to using primary data.

### 3.5 Ethical Aspects

Using secondary data does not only increase the return of (often) public investments on data collection, but it also relieves respondents of additional burdens. The use of secondary data can be argued as ethical since it constitutes a minimal risk on the respondents (The European code for integrity of research revised, 2018). Similar to primary data, secondary data needs to outweigh the risk of re-identifying participants and revealing sensitive information (ibid.). This research was based on highly aggregated primary data, making any disclosure of respondents or other delicate information highly unlikely. It is therefore argued that ethical aspects have been taken into consideration and followed since the data used and generated does not damage or distress the participants.

# 4.0 RESULTS

There was a total of 5001 responders in this study, 50 % were girls and 50 % were boys. 96.6 % of female participants had a German citizenship - similarly to the boys where 96.8 % of them had a German citizenship. The level of mobility between the sexes was also similar, where girls had 93.9 % mobility and boys (94.9 % mobility). The youngest respondents among the girls and boys at the time (2011) were 12 years of age and the oldest 25 years old. Both girls and boys had a mean of 17 years. The even distribution among girls and boys, was considered as a good fit for comparative analysis.

The results show that 73,6 % (3682 respondents) of the respondents had not used Marijuana/Hash, Ecstasy, Amphetamine/Stimulants, LSD, Cocaine, Crack, and Heroin. The most used drug was Marijuana/Hash with a frequency of 21.9 % (1094 respondents), and the least commonly used drug was Heroine with a frequency of .1 % (6 respondents).

*Table 4. Background information on girls and boys.*

| **Participants** | | |
|---|---|---|
| | **Girls** | **Boys** |
| *German* | *96.6 %* | *96.8 %* |
| *Mobility* | *93.9 %* | *94.9 %* |
| *Age distribution* | | |
| *Mean* | *17 years* | *17 years* |
| *Median* | *20 years* | *20 years* |
| *Min* | *12 years* | *12 years* |
| *Max* | *25 years* | *25 years* |
| *Std. Deviation* | *4 years* | *4 years* |

*The table shows the distribution of respondents in relation to ethnicity, mobility, and age.*

## 4.1 Bivariate analyses

Bivariate analyses were conducted so that it would be possible to see if there is a significant relationship between two variables. The analyses would help to identify a relationship between the dependent and independent variable, as well as determine the strength of the association.

**Gender and drug use**

The result showed that 22.1 % of girls had tried drugs and 30.6 % boys. The $\chi^2$ analyses showed a $\chi 2$ value of 770.752 (df=1) which indicates a significant difference (p=<.001) between the two groups.

**Mobility and drug use**

Of the respondents who had used drugs, 22.7 % of female respondents were categorised as having low mobility as well as 30.6 % of the male respondents. The $\chi^2$ analyses showed a $\chi 2$ value of 3967.835 (df=1) which was a significant difference (p=<.001) between the gender groups.

The $\chi^2$ analyses between female respondents who had and had not used drugs showed a $\chi 2$ value of 1927.007(df=1) which indicates a significant difference (p=<.001) between the two groups.

The $\chi 2$ analyses between male respondents who had and had not used drugs showed a $\chi 2$ value of 2041.200 (df=1) which showed a significant difference (p=<.001) between the two groups.

**Delinquent friends and drug use**

A point-biserial correlation was used so that the association of two variables, one continuous and the other dichotomous, to measure the strength and the direction of the association.

A point-biserial correlation was calculated between the number of delinquent friends and the respondents' drug use, the correlation showed a positive and significant correlation (p=<.001). This means that when people deviate from one

mean on one variable there is also a deviation from the mean in the opposite direction on the second variable:  higher levels of drug use correlate with an increased number of delinquent fiends. The correlation coefficient was .429, which according to Cohen (1988) is of a medium effect size in the social and behavioural sciences.

Point-biserial correlations were also calculated separately for boys and girls. For the girl respondents the test resulted in a positive and significant correlation (p=<.001) with a medium size coefficient of .377. For the boys, the point-biserial correlation showed a significant correlation (p=<.001) and a medium size coefficient of .458 (Cohen, 1988). The correlations showed that higher levels of drug use were associated with an increased number of delinquent friends for both boys and girls as well as for the overall sample.

**Ethnicity and drug use**

The $\chi^2$ test on ethnicity and drug use showed significant differences between the two groups (p=<.001) with a $\chi 2$ value of 4362.776 (df 1).

There were significant differences (p=<.001) between girls who had used drugs and those who had not used drugs with the $\chi 2$ value of 2153.290 (df 1). A significant difference (p=<.001) was also observed among boys who had used drugs and those who had not with a $\chi 2$ value of 2209.402 (df 1) in relation to ethnicity.

**SES and drug use**

A point-biserial correlation was done on low SES markers and drug use, which showed a positive but non-significant correlation (p=.724), with a low correlation coefficient of .005. This means that respondents displaying more markers of low SES did not have any relation with drug use.

A point-biserial correlation was made among girls, resulting in a positive but non-significant (p=.579) correlation with a low coefficient of -.011 (Cohen, 1988). The point-biserial correlation which was done on boys resulted in a positive and non-significant (p=.212) correlation with a low coefficient of .025 (Cohen, 1988).

*Table 5. A compilation of significance tests performed between drug use and independent variables*

**Significance Test of Independent Variables**

| | | Test | $\chi 2$ | df | p-value |
|---|---|---|---|---|---|
| *Gender and Drug Use* | *Total* | $\chi 2$ | *405* | *1* | *.525* |
| *Ethnicity and Drug Use* | *Total*<br>*Girls*<br>*Boys* | $\chi 2$ | *4362.776*<br>*2153.290*<br>*2209.402* | *1*<br>*1*<br>*1* | ***<.001***<br>***<.001***<br>***<.001*** |
| *Mobility and Drug Use* | *Total*<br>*Girls*<br>*Boys* | $\chi 2$ | *3967.835*<br>*1927.007*<br>*2041.220* | *1*<br>*1*<br>*1* | ***<.001***<br>***<.001***<br>***<.001*** |
| | | | $r_{pb}$ | | |
| *Delinquent Friends And Drug Use* | *Total*<br>*Girls*<br>*Boys* | $r_{pb}$ | *.492*<br>*.377*<br>*.458* | | ***<.001***<br>***<.001***<br>***<.001*** |
| *Low SES and Drug Use* | *Total*<br>*Girls*<br>*Boys* | $r_{pb}$ | *.005*<br>*-.011*<br>*.025* | | *.724*<br>*.579*<br>*.212* |

*$\chi 2$ is used as a statistical measurement of the differences between an observed and expected frequencies of the outcome of variables.*
*$r_{pb}$ is used to measure the strength of a correlation.*
*P-value refers to the threshold for when the result is to be considered as significant or not. The p-value is significant at <.05.*

## 4.2 Logistic regressions

### Model 1

All variables were entered simultaneously into the equation: the five independent variables of SES, mobility, delinquent friends, ethnicity, and gender were all placed in the first block.

The overall model was statistically significant (p=<.001), with a $\chi 2$ value of 904.128 (df. 5). Model summary showed a pseudo R2 (Nagelkerke) value of .244, indicating that an estimated 24 % of variance in drug use could be accounted for by this model.

| *Table 6. The significance test of logistic regression model 1* | | | | |
|---|---|---|---|---|
| **Logistic Regression - Model 1** | | | | |
| **χ2** | **df** | **Sig.** | **-2 LogLikelihood** | **R2** |
| *904.128* | *5* | ***<.001*** | *4808.287* | *.244* |
| *P-value is significant at <.05.*<br>*Test results show that the model is significant.* | | | | |

The variables in the equation showed that the number of delinquent friends (p=<.001) and gender (p=<.001) had a significant and unique association with drug use, with an odds ratio of 5.161 for delinquent friends and 1.350 for gender. The odds ratio means every unit increased for gender (i.e., being male) increased the odds of drug use 1.35 times.

| *Table 7. Results of the logistic regression model 1 showing if there is a significant association between the independent variables and drug use.* | | | |
|---|---|---|---|
| **Logistic Regression - Model 1** | | | |
| | **B** | **p** | **Odds ratio** |
| SES | *.059* | *.332* | *1.061* |
| Mobility | *-.215* | *.248* | *.807* |
| Delinquent Friends | *1.641* | ***<.001*** | *5.161* |
| Ethnicity | *-.340* | *.169* | *.711* |
| Gender | *.300* | ***<.001*** | *1.350* |
| *P-value is significant at 0.05*<br>*Delinquent friends and gender have a significant association with drug use.* | | | |

### *Model 2*

Next, girls and boys were looked at separately. The overall model was statistically significant (p= <.001). The result for girls was significant (p=<.001) with a $\chi^2$value of 321.050 (df. 4). The result for boys was also significant (p=<.001) with a $\chi^2$value of 546.510 and (df. 4). The model summary for girls showed a pseudo R2 (Nagelkerke) value of .188, and for boys a pseudo R2 (Nagelkerke) value of .278.

| *Table 8. Significance test of the logistic regression model 2* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Logistic Regression - Model 2** | | | | | | | | | |
| **Girls** | | | | | **Boys** | | | | |
| **χ2** | **df** | **Sig.** | **-2 Log Likelihood** | **R2** | **χ2** | **df** | **Sig.** | **-2 Log Likelihood** | **R2** |
| *321.050* | *4* | ***<.001*** | *546.510* | *.188* | *546.510* | *4* | ***<.001*** | *2527.512* | *.278* |
| *P-value is significant at <.05.*<br>*Test results show that the model is significant.* | | | | | | | | | |

The variable equation for girls showed significant results in mobility (p=.014) and delinquent friends (p=<.001), meaning that when girls had low amounts of mobility as well as having delinquent friends, it increased the odds of using drugs significantly. The odds ratio for mobility was .482 and had a B-value of -.730, which means that lower mobility increases the odds of using drugs among girls. The odds ration for delinquent friends was 4.542 and had a B-value of 1.153, which means that having delinquent fiends increased the odds of drug use among girls.

The variable equation for boys showed significant result (p=<.001) in delinquent friends. The odds ratio for delinquent friends was 5.798 and had a B-value of 1.758, which means that having delinquent friends increased the odds of drug use among boys.

The variable equation for ethnicity showed a significant result (p=.038) among boys. The odds ration for ethnicity was .492 and had a B-value of -.709, which means that boys with German citizenship had decreased odds of drug use.

*Table 9. Results of the logistic regression model 2 showing if there is a significant association between the independent variables and drug use.*

**Logistic Regression - Model 2**

| | **Girls** | | | **Boys** | | |
|---|---|---|---|---|---|---|
| | **B** | **Sig.** | **Odds ratio** | **B** | **Sig.** | **Odds ratio** |
| *SES* | *.027* | *.752* | *1.028* | *.098* | *.256* | *1.103* |
| *Mobility* | *-.730* | ***.014*** | *.482* | *.223* | *.370* | *1.250* |
| *Delinquent Friends* | *1.513* | ***<.001*** | *4.542* | *1.758* | ***<.001*** | *5.798* |
| *Ethnicity* | *0.33* | *.927* | *1.034* | *-.709* | ***.038*** | *.492* |

*P-value is significant at <.05.*
*Mobility and delinquent friends have a significant association with drug use among girls.*
*Delinquent friends and ethnicity have a significant association with drug use among boys.*

## 4.3 Hierarchical logistic regression

To determine if the differences between boys and girls were statistically significant, a hierarchical logistic regression analysis was conducted. It was necessary to calculate an interaction term between gender and each variable which had shown to have a significant relation to drug use in previous regression analyses. Since the number of low SES markers was not statistically significant for either boys or girls, it was excluded from this analysis.

The interaction terms were entered into a second step of the model to determine if they added significantly to the original predictors. A significant increase would indicate that at least one of the interaction terms would increment the original variables, and thus, show evidence for a moderation effect of gender.

The overall hierarchical logistic model was statistically significant (p=<.015), and had a $\chi 2$ value of 10.491 (df 3).

*Table 10. Significance test of the hierarchy regression model*

**Hierarchical Regression**

| $\chi 2$ | **df** | **Sig.** | **-2 Log Likelihood** | **R2** |
|---|---|---|---|---|
| *10.491* | *3* | ***<.015*** | *4798.727* | *.246* |

*P-value is significant at <.05.*

The hierarchical regression showed that there are significant differences regarding mobility (.015) and delinquent friends (<.001) in relation to drug use. This result, in combination with previous regression, shows that there is a significant difference between girls and boys in relation to mobility and drug use.

By examining logistic regression model 2, it was possible to see that mobility was not significant for boys but was significant for girls (see table 9). It was also possible to see significant similarities between girls and boys in relation to delinquent friends and drug use.

*Table 11. Results of the hierarchy regression model showing if there is a significant association between the independent variables and drug use.*

**Hierarchical Regression**

| | **B** | **Sig.** | **Odds ratio** |
|---|---|---|---|
| *Mobility* | *-.715* | ***.015*** | *.489* |
| *Delinquent Friends* | *1.513* | ***<.001*** | *4.539* |
| *Ethnicity* | *.042* | *.907* | *1.043* |

*P-value is significant at <.05.*
*The hierarchical regression shows that the results of mobility and delinquent friends from previous regression are significant.*

# 5.0 DISCUSSION AND CONCLUSION

This research has examined if risk factors stated in social disorganisation theory has the same impact on girls and boys. In logistic regression, Model 1, five independent variables - SES mobility, delinquent friends, ethnicity, and gender - were analysed in relation to drug use. Significant similarities were observed between the boys and girls when all variables were conjuncted; having delinquent friends increased the odds of drug use among the respondents. This result is

consistent with Shaw and McKay´s (1931; 1942) hypothesis in which socialising with delinquent friends increases the odds of committing delinquent acts.

The relation between drug use and having delinquent friends was also observed in the second model, and was significant when gender was not conjuncted with the other independent variables. In the logistic regression conducted in Model 2, it was however possible to observe inconsistencies between boys and girls. Among girls it was observed that having a *low* amount of mobility *increased* the risk for drug use significantly, while among boys' mobility did not have a significant effect on drug use. The results show inconsistency with one of the important cornerstones of Shaw and McKay's (1931; 1942) theory on factors influencing the development of juvenile delinquency. Among girls, mobility did have a significant effect on delinquent acts but in the opposite direction predicted in Shaw and McKay's social disorganisation theory. The lack of a significant relation between boys and drug use based on mobility, adds further discrepancy from the theory since the results cannot be used as a predictor of delinquency.

Results in the hierarchical logistic regression model showed significant differences between girls and boys in relation to mobility. Gender can thus be used as a moderator in relation to mobility and drug use in relation to girls, but not to boys.

Surprisingly, SES did not show any statistical significance in relation to delinquency - despite it being a well-established risk factor for delinquency and drug use in previous research (Devenish, Hooley, Mellor., 2017; Piotrowska et al., 2015; Reiss 213). The contradicting research result indicates limitations in the way that SES was measured.

In this study, key factors, such as education, occupation, and the amount of property (computers) was used as measurement of low SES, with the assumption that low SES had a negative effect on an individual's quality of life. By doing so, the different components used in the measurement of SES were hypothesised as being conceptually similar; a parent with higher education and may have an easier time finding employment. High SES was therefore presumed to have a positive impact for families since it was believed to decrease the odds of delinquent behaviour among their children.

The unique role different levels of SES may have on an individual's life might therefore have been overlooked (Dickinson and Adelson, 2014). For example, a parent who is unemployed should not automatically be equated with increased risk of developing delinquent behaviour among their children: an unemployed parent will be able to be more present in their child's life than an employed parent. Being more accessible in a child's life has been established as increasing the opportunities of performing social control (Hirschi, 1969; Sampson and Laub, 1993) as well as avoiding the negative and long-term effects of disruptive attachment during infancy (Bowly, 1973; Ainsworth, 1979).

Two elements, gender and technological advancements, have been argued as influencing variables in the applicability of Shaw and McKay´s (1931; 1942) theory of social disorganisation theory.. While this research has addressed the element of gender, further research is encouraged regarding technological

advancements and its influence in the development of delinquent behaviour among youth.

**Conclusion**

A drawback with conducting research on secondary data is that knowledge gaps on the reasoning behind the creation process of the original survey. There are thus uncertainties about the validity and reliability of this research, questions may for instance have been selected and combined in a way that misrepresent what they originally were intended to measure. The limitations with measuring SES in a multifaceted way - where individual differences are taken into consideration - can also be observed as a drawback with the use of quantitative methodology. Even if the sample was representative, the potential lack of reliability and validity means that there may be some problems with generalising the results.

Also, when analysing the normal distribution of drug use, it showed an extreme skewness since the vast majority of respondents had taken Marijuana/Hash or Ecstasy. It should therefore be considered that if the study would be replicated in a country where the consumption of Marijuana (or any other of the drugs included in the survey) is not illegal, it may affect the generalisability of this research.

The results are however generalizable to the field of criminology and society since it demonstrates that gender does to some extent have a significant impact on delinquent behaviour among youth. The counter hypothesis, *(Ha) There is a gender-invariance in how risk factors in social disorganisation theory affects drug-use among boys and girls,* is thus accepted.

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