An Empirical Analysis Of The Risk Factors That Lead To Juvenile Delinquency Among High School Learners In Windhoek, Namibia

Yande Sinyangwe[1], Maria A.E. Muller[1*]

[1]Department of Statistics and Population Studies, Faculty of Science, University of Namibia, 340 Mandume Ndemufayo Avenue, Private Bag 13301, Pionierspark, Windhoek, Namibia.

Abstract

Juvenile Delinquency has become a major issue in Namibia and globally, receiving a considerable amount of attention from the media and politicians, as it is widely believed by criminologists and sociologists alike, that most adult criminals started out as juvenile delinquents. The increasing levels of juvenile delinquency in Namibia, Windhoek in particular have become a matter of national concern. Much of the effort, thus far, has been focused on punishment and correctional measures but little has been done on prevention and intervention. This study attempts to provide an empirical understanding of the risk factors that lead to Juvenile Delinquency in Windhoek. To fully answer the research questions, a mixed method approach comprising qualitative and quantitative methods was carried out. Results show that a significant difference in attitude towards school exists between learners from low and high density areas. A further examination of these results, show that learners tend to uphold delinquency as acceptable. We also note that learners from higher density areas appear to have a negative attitude towards life. Based on these results, we conclude that Juvenile Delinquency among high school learners in Windhoek is a cultural demeanor as the results are similar regardless of respondents' residential density and location of school. The results of this study will be significant in that they will help policy makers and members of society understand the underlying factors that are likely to lead youths into delinquent behaviour. This in turn will help stakeholders come up with more effective preventive and intervention programs.

*Corresponding author - E-mail: mmuller@unam.na

1   Introduction

Crime exists everywhere in Namibia, in both rural and urban areas and among all types of people. Crime is widely considered as a malady because of the negative socio-economic costs attached to it. Members of society pay taxes to cover the cost of law enforcement and incarceration of criminals while victims of crime carry a mental, physical and material burden.

Juvenile Delinquency has become a major issue in Namibia and globally, receiving a considerable amount of attention from the media and politicians as it is widely believed by criminologists and sociologists alike that most adult criminals started out as juvenile delinquents (Muncie, 2008). A lot of research has been conducted to attempt to explain the underlying causes of juvenile delinquency and crime and several schools of thought have emerged. The extent to which any of these ideas is a general or universal explanation of offensive behaviour among young people everywhere, however, remains an empirically unexplored question (Hartzen, 2008). The bulk of the research conducted thus far is on samples of American youths, or youths in similar social-cultural environments (for example Canada and Western European societies). It must be noted that researchers in this field have come to a consensus that no single factor leads to delinquency and have concluded that there is an interaction of factors that lead youths to commit delinquent acts.

In recent years, criminology researchers have adopted a 'Criminal Career Approach' which suggests that offending is part of an extended continuum of anti-social behaviour that first arises in childhood, persists into adulthood and reproduced in successive generations (Muncie, 2008). Criminal Career Approach attempts to understand the causes of delinquency and work towards its prevention. Therefore, if a youth possess certain risk factors, research has shown that these factors are likely to increase his or her chance of becoming a delinquent. Thus, risk analysis will be vital to determine the intervention that a youth will require to lower his or her chances of becoming delinquent.

2   Some Literature Review

Delinquent behavior has attracted a significant amount of attention from experts in various fields. Considerable input has come from the fields of Sociology, Psychology, Criminology, anthropology, social work and the legal profession. Much of this research has been based on extensive qualitative studies conducted by these researchers at different stages of human development. Some theories have been overshadowed by others while some have evolved as others add on to previous results in conformity with the prevailing world order (Hirschi, 1969). The aim of this literature review is to explore and provide a succinct review of the general theories on the causes of juvenile delinquency and also to explore results of various studies conducted by researchers over the years. It should be noted however that in their attempts at explaining juvenile delinquency and its causes, these theorists and researchers were influenced by a number of factors as noted by Sandhu (1979), such as their respective disciplines (sociological, medical, legal,), to an extent by the prevailing philosophy of their time (Darwinian, Freudian, Durkheimian), historical events (war, depression, immigration) and also by social changes (urbanization, migration, norm erosion).

For a clearer understanding of the causation theories, Sandhu (1979), like other experts in the field has grouped them into three main categories vis:

1. Delinquency-generating sources in the society (sociological perspective).

2. Delinquency-generating sources in the individual (psychogenic perspective).

3. Delinquency-provoking sources in the interaction of the individual and the society (social psychological or interaction perspective)

These groups are basically a reflection of individual (self-esteem, mental/physical abilities etcetera), environmental (gangs, community structure for example population density, crime rate) and family level factors (such as relationship with guardians, marital status of parents, and relationship with siblings') that have been mentioned in the preceding sections. The succeeding paragraphs discuss these general factors in more detail.

Most Sociologists contend that delinquency is a function of society. Sandhu (1979), notes that sociologists believe that the sources of delinquency are embedded in the social process. He notes that society as it is structured exerts pressure on some individuals to be delinquent (the structural or cultural approach). That is to say a society may drive certain individuals away from the mainstream of life forcing these individuals to seek belongingness in delinquent gangs. Sandhu (1979) also notes that a few other sociologists think the dominant groups design and execute the laws so that they are able to label opposing groups as criminal (the conflict approach). Sandhu (1979) discusses the findings of sociologists such as Miller on

lower class cultures and their tendency to generate gang delinquency and cites the street-corner groups in lower class communities that violate laws in order to behave as they are expected within their communities. Other factors such as inequality in the community also contribute to the incidence of delinquency (Muncie, 2003). Another factor exerted by the society is that of status. Individuals tend to engage in delinquent acts in order to establish a status in their communities, Sandhu (1979) gives an example of children of the working class who find themselves stifled in a world dominated by middle-class standards, this is compounded in schools. Judged by standards which are alien to them, these children of working class families feel defeated and degraded in status and try to re-claim their status by associating with gangs to compensate for the loss in status. Culture conflict and opposing group (for example religious groups) interests usually result in conflicts that lead to delinquent behavior.

Another general theory that sociologists and other researchers in the field of Juvenile delinquency have reached consensus on is the idea that specific factors unique to the individual are likely to contribute to Juvenile delinquent acts. Sandhu (1979) discusses a number of schools of thought that have studied these factors. For example, the physical anthropologists attribute delinquency to a particular body type (mesomorph) implying that this particular body type predominates delinquent behavior. On the other hand, neo-Freudians have placed the blame on inborn asocial instincts which were never socialized during childhood. Neo-Freudians argue that delinquency is not pre-determined at birth but is determined by emotional relationships, that is, by the first experiences which the environment forces upon the child. Psychoanalysts try to diagnose the quality of the typical adjustments made by an individual offender. Sociologists on the other hand relate the factor of self-delinquency. Organic psychosis is also believed to contribute to delinquency indirectly.

The interaction of the individual and society has been another focal point by researchers and experts in the field in the study of delinquency (Muncie, 2008). Sandhu (1979) gives an example of how family and school interact to facilitate delinquent acts by generating conditions that give rise to delinquency concluding that vulnerable children are more likely to react to these conditions in a delinquent fashion. On the same score, according to learning theories, society provides conditions suitable to the learning of delinquent ways and consequently they readily yield to these. Sandhu (1979), further discusses containment theory, where the group pressures of poverty, marital status, discrimination, and deprivation on the individual. The group consequently pulls the individual to the lures of a criminal life. The individual reacts to these pressures and pulls of the group on the strength of his or her inner and outer containments. Family structure, the majority of children found to be committing delinquent acts have come from broken homes (Sandhu, 1979), however it must also be noted that the effect of broken homes does not have the same effect on all children (Muncie, 2003). The parent-child relationship has also been found to be a significant factor in the incidence of delinquency. The consistency and fairness of discipline have been found to be significantly associated with conforming behavior (Sandhu, 1979). However it is also possi-

ble that delinquents and non-delinquents have different perspectives on parental discipline despite similarities that might be present. School failure and also the notion that criminal behavior is learned are also some of the factors that have been cited using the interactionist approach.

Hirschi (1969), outlines the causation theories prevailing in his time and goes on to discuss the logical and Empirical differences attributed to each of them. During his time the three fundamental theories dominating most of the research perspectives were strain or motivational theories which imply legitimate desires that conformity cannot satisfactorily force a person into deviance (Merton, 1957). Control or bond theories which imply that a person is at liberty to commit delinquent acts because his ties to the conventional order of society have been broken (Matza, 1964).Cultural deviance theories which imply that the deviant conforms to a set of standards not accepted by a larger or more powerful society (Sutherland, Cressey, 1966). Hirschi (1969), examined a set of data collected by a study of Richmond Youth conducted by the University of California, Berkley. His research was mainly empirical employing a number of multivariate statistical techniques as well as tabular analysis to fully answer the research questions and his goal was to test the Social Control theory which he was supporting. The sample was chosen using probability sampling methods and data was collected from three sources: school records, questionnaire completed by students and police records. Among the difficulties encountered in his study are response bias and spurious relationships among the variables. Hirschi (1969), employs a number of traditional variables which are applicable to countries in the West such as the United States of America, Canada and Western European countries. These traditional variables are variables such as age, employment status of mother, family size, broken home (i.e. divorced parents).

In recent years, the study of juvenile delinquency has taken an approach adopted from the public health arena (Farrington, 2000). For example in assessing a patients risk of kidney failure, a medical practitioner would normally start by asking for the patient's medical history, family history, diet, weight and exercise regime because each of these factors has an effect on the persons renal health. Once this risk analysis has been performed, the practitioner can then recommend means by which the patient can reduce his or her risk of kidney failure. Using this train of thought, if a juvenile possess certain risk factors, research (Farrington, 2000) indicates that these factors increase the likelihood of delinquent behavior. Therefore, a careful assessment of these factors might shed more light on the kind of intervention that can suit the juvenile and decrease his or her chances of engaging in delinquent behavior. Farrington (2000) has labeled this recent movement toward the public health model as the "risk factor paradigm".

It can be seen from previous work that the amount of literature and research conducted in this field is extensive and this literature review has only covered a small fraction that is believed to be relevant to the research problem. This research proposal uses this new approach towards assessing the main risk factors that are believed to have a significant bearing on

juvenile's attitudes and involvement in delinquent acts. The nature of the research is empirical therefore methods used by other empirical researchers such as Hirschi shall be adopted. The primary objective of this study, therefore, is to determine the risk-factors that lead to Juvenile Delinquency among High School Learners in Windhoek. The secondary objectives are: (i) To determine knowledge and attitudes of Learners towards juvenile delinquency; (ii) To review existing social economic structures that supports juvenile delinquency. For this study we generate the following research questions and hypotheses.

First, the research questions were:

1. What risk factors lead to juvenile delinquency?

2. Is there a difference in risk factors that lead to delinquent behaviour among youths from low and high density areas? What is the nature of these differences?

3. Do youths know what juvenile delinquency entails? What is their attitude towards delinquents? Do they uphold juvenile delinquency as acceptable? Is it a cultural demeanor?

Second the research hypothesis were derived as:

1. Youths from high density areas exhibit a higher incidence of delinquent behaviour.

2. There is a difference in attitude towards delinquent behavior between learners from low and high density areas.

3. There is a difference in attitude towards school between learners from low and high density areas.

4. There is a difference in attitudes towards society/life between learners from low and high density areas.

3   Methodology

The target population for this research paper is defined as all residents of Windhoek above the age of 18. Convenience sampling was used to obtain a sample for this research paper from residents selected at random from different locations in Windhoek.

A number of statistical techniques such as Student's samples t-test and Pearson's chi-square test were used, followed by Factor analysis and Discriminant analysis. A survey

questionnaire (available on request) was used as a measuring instrument and was handed out to the randomly selected respondents. In the near future a focus group discussion can follow with experts in Education and Psychology pending the outcomes of the survey.

A new variable, Residential Density, was created that placed individuals in two categories, "low or high density" based on their response to Question 3 (responses for this variable are weighted based on residential density). Another variable, Risk Status, was created that determined the risk status of the respondent based on response to Question 27 in the questionnaire. Respondents had to tick boxes off with offenses they had committed in the past, namely: Stealing; Insulting Teachers/Parents; Bullying others; Damaging School/Public Property; Skipping School/Class; Taking Drugs/Cigarettes/Alcohol; Mugging(robbing others with a weapon/force) and Forcing a girl/boy to sleep with him/her. Respondents with a score less than 2 (counting ticks) in Question 27 (self-reported delinquency) were placed in the "Low-Risk" category while those with scores greater than or equal 2 two were classified as "High Risk".

3.1 Factor Analysis

A large number of variables in a study make it difficult to establish patterns of association. However, it is common for variables to repeat themselves and this repetition is a sign of multi-collinearity implying that the variables are related, in the context of this study this would imply that the variables are representing similar constructs. Factor Analysis was therefore used to reduce the dimensionality of the data and determine the underlying factors leading to Juvenile Delinquency. Factor analysis can simultaneously manage many variables, compensate for random error and invalidity and disentangle complex interrelationships into their major and distinct regularities. As phenomena co-occur in space or in time, they are patterned; as these co-occurring phenomena are independent of each other, there are a number of distinct patterns. We associate a pattern of attitudes with, in our case, Juvenile Delinquency. Factor analysis takes lots of measurements and qualitative observations and resolves them into distinct patterns of occurrence. The focus can also be the patterns of variation of characteristics and factor analysis applied to delineate patterns of variation in characteristics is called R-factor analysis. It is an exploratory tool for unearthing the basic empirical concepts in a field of investigation and can be used to discover prevailing concepts reflecting unsuspected influences at work in a domain.

The algebraic model:
We resort to an untraditional mathematical approach: Let us assume that our Y variables

are related to a number of functions operating linearly. That is,

$$Y_1 = \alpha_{11} F_1 + \alpha_{12} F_2 + \ldots + \alpha_{1m} F_m,$$
$$Y_2 = \alpha_{21} F_1 + \alpha_{22} F_2 + \ldots + \alpha_{2m} F_m,$$
$$Y_3 = \alpha_{31} F_1 + \alpha_{32} F_2 + \ldots + \alpha_{3m} F_m,$$
$$\vdots$$
$$Y_n = \alpha_{n1} F_1 + \alpha_{n2} F_2 + \ldots + \alpha_{nm} F_m$$

where Y is a variable with known data; α = a constant and F = function of some unknown variables. Thus F stands for a function of variables and not a variable. Factor analysis defines the unknown F functions. The loadings emerging from a factor analysis are the a constants. The factors are the F functions. The size of each loading for each factor measures how much that specific function is related to Y. For any of the Y variables of the above set we may write

$$Y = \alpha_1 F_1 + \alpha_2 F_2 + \ldots + \alpha_m F_m,$$

with the F's representing factors and the α's representing loadings.

We may find that some of the F functions are common to several variables. These are called group factors and their delineation is often the goal of factor analysis. Besides determining the loadings, α, factor analysis will also generate data (scores) for each case on each of the F functions uncovered. These derived values for each case are called factor scores. Those functions, F, that are multiplied by small or near-zero loadings, α, are left out.

To conduct the factor analysis, respondents were selected based on their risk status, the selection criteria was that an individual falls in the High Risk category, a total of 83 cases were selected. 24 variables were used for the analysis covering constructs such as Demographic characteristics, family structure, attitudes and interaction with peers.

Three significance tests were conducted prior to conducting the main analysis. All procedures were done with SPSS and are summarized in Table 1.

After, the significance tests above, the main analysis was run in two parts using SPSS and the following steps were followed;

1. Primary Analysis: Run on the 24 variables with 69 cases (high risk individuals as defined earlier) selected. Kaiser selection criterion of selecting factors with eigenvalues greater than one was applied.

2. Rotation: Direct oblimin rotation used to improve interpretability as the researcher believed the factors might correlate, Field (2005).

Table 1: Factor Analysis Significance tests description.

SIGNIFICANCE TEST	PURPOSE	Decision Rule
R-matrix	Determinant used to indicate presence of Multi-colinearity and Singularity	If $det(R) > 0.000527$, we conclude that there is no problem of multi-collinearity or singularity
Kaiser-Meyer-Olkin (KMO)	Measure of Sampling Adequacy	Observed Value $>= 0.5$, indicates that the sample size is adequate
Bartlett's test of sphericity	Tests null hypothesis that original correlation matrix is an Identity matrix $\alpha = 0.05$	$p < 0.05$ leads us to reject null hypothesis, indicating that some of the variables are related.

3. Factor Scores: Calculated using Anderson-Rubin method and saved as new variables to be used for further analysis.

4. Secondary Analysis: Run on the 24 variables with 69 cases (high risk individuals as defined earlier) selected. User specified to return 8 factors.

5. The factors were labeled from the component matrix derived from the secondary analysis above based on underlying constructs that researcher believed the variables were representing.

3.2   Discriminant Analysis

Discriminant Analysis (DA) involves the determination of a linear equation like regression that will predict which group the case belongs to. The form of the equation or function is:

$$D = v_1 X_1 + v_2 X_2 + v_3 X_3 + \ldots + v_i X_i + a,$$

where
D = discriminate function
v = the discriminant coefficient or weight for that variable
X = respondent's score for that variable
a = a constant
i = the number of predictor variables

This function is similar to a regression equation or function. The v's are unstandardized discriminant coefficients analogous to the b's in the regression equation. These v's maximize

the distance between the means of the criterion (dependent) variable. Standardized discriminant coefficients can also be used like beta weight in regression. Good predictors tend to have large weights. What you want this function to do is maximize the distance between the categories, i.e. come up with an equation that has strong discriminatory power between groups. After using an existing set of data to calculate the discriminant function and classify cases, any new cases can then be classified. The number of discriminant functions is one less the number of groups. There is only one function for the basic two group discriminant analysis.

A discriminant score is a weighted linear combination (sum) of the discriminating variables. The major underlying assumptions of DA are:

- the observations are a random sample;

- each predictor variable is normally distributed;

- each of the allocations for the dependent categories in the initial classification are correctly classified;

- there must be at least two groups or categories, with each case belonging to only one group so that the groups are mutually exclusive and collectively exhaustive (all cases can be placed in a group);

- each group or category must be well defined, clearly differentiated from any other group(s) and natural. Putting a median split on an attitude scale is not a natural way to form groups. Partitioning quantitative variables is only justifiable if there are easily identifiable gaps at the points of division;

- the groups or categories should be defined before collecting the data;

- the attribute(s) used to separate the groups should discriminate quite clearly between the groups so that group or category overlap is clearly non-existent or minimal;

- group sizes of the dependent should not be grossly different and should be at least five

- times the number of independent variables.

Discriminant analysis creates an equation which will minimize the possibility of misclassifying cases into their respective groups or categories.

The aim of the statistical analysis in DA is to combine (weight) the variable scores in some way so that a single new composite variable, the discriminant score, is produced. One way of thinking about this is in terms of a food recipe, where changing the proportions weights of

the ingredients will change the characteristics of the finished cakes. Hopefully the weighted combinations of ingredients will produce two different types of cake. Similarly, at the end of the DA process, it is hoped that each group will have a normal distribution of discriminant scores. The degree of overlap between the discriminant score distributions can then be used as a measure of the success of the technique, so that, like the Standardizing the variables ensures that scale differences between the variables are eliminated. When all variables are standardized, absolute weights (i.e. ignore the sign) can be used to rank variables in terms of their discriminating power, the largest weight being associated with the most powerful discriminating variable. Variables with large weights are those which contribute mostly to differentiating the groups.

As previously said discriminant analysis assigns observations into previously defined groups. In this study, it was used to determine the risk category of an individual and test the validity of the results obtained in factor analysis. Thus there are several purposes for Discriminant Analysis:

- To classify cases into groups using a discriminant equation.

- To test theory by observing whether cases are classified as predicted.

- To determine the percent variance in the dependent variable explained by the independents.

- To determine the percent of variance explained by the independents over and above the variance accounted for by control variables, using sequential discriminant analysis.

- To assess the relative importance of the dependent variables in classifying the dependent variable.

- To discard variables which are related to group distinctions.

- To investigate differences between groups on the basis of the attributes of the cases, indicating which attributes contribute most to group separation. The descriptive technique successively identifies the linear combination of attributes known as canonical discriminant functions (equations) which contribute maximally to group separation.

- Predictive DA addresses the question of how to assign new cases to groups. The DA function uses a person's scores on the predictor variables to predict the category to which the individual belongs.

- To determine the most parsimonious way to distinguish between groups.

- To classify cases into groups. Statistical significance tests using chi square enable you to see how well the function separates the groups.

- To test theory whether cases are classified as predicted.

Discriminant analysis is an earlier alternative to logistic regression, which is preferred when the assumptions of linear regression are met because it has more statistical power than logistic regression (less chance of Type II errors - accepting a false null hypothesis).

The Discriminant analysis was conducted to determine whether the eight predictors (factors obtained from factor analysis above) could be used to determine the risk status of an individual. The factor scores of the eight factors were used for the discriminant analysis. The grouping variable was, Risk Status, while the independent variables were all eight factors. Prior probabilities were computed from group sizes and predicted group membership saved as new variables.

Three significance tests were conducted prior to conducting the main analysis. All procedures were done with SPSS and are summarized in Table 2. A discriminant function was obtained and then fitted on the entire dataset to observe the percentage of respondents that would be correctly classified. A Kappa significance test was conducted, as explained in Table 3.

Table 2: Discriminant Analysis Significance tests description.

SIGNIFICANCE TEST	PURPOSE	Decision Rule
Box's M	Tests null hypothesis of equal population covariance matrices $\alpha = 0.05$	$p < 0.05$: we do not accept null hypothesis and conclude that population covariance matrices are not equal
Wilk's Lambda	Tests null hypothesis of no significant differences among groups across predictors (Factors) $\alpha = 0.05$	$p < 0.05$: we do not accept null hypothesis and conclude that there are differences among groups across predictors
Canonical Correlation (x)	Measures % of variability in discriminant function accounted by factors	$\sqrt{x} = \eta^2$, we multiply η^2 by 100 to get percentage of variability in discriminant function accounted for by factors

Table 3: Kappa test description

SIGNIFICANCE TEST	PURPOSE	Decision Rule
Kappa	Measure of agreement to detect accuracy in prediction of group membership	Kappa value ranges from 0 to 1, 0 indicating no agreement while 1 indicates perfect agreement

3.3   Independent Samples t-test

To test the first research question, the Independent samples t-test was used with the following hypothesis;

- H_0: There is no difference in the incidence of delinquent behavior between learners from low and high density areas.

- H_1: Learners from high density areas exhibit a higher incidence of delinquent behavior than learners from low density area. Significance level is $\alpha = 0.05$.

The mean score from Question 27, measuring self-reported delinquency score, was used as the scale variable, while Residential Density, served as the grouping variable.

3.4   Bivariate Correlations

The remaining three research Hypotheses were comparing categorical variables, therefore the Pearson chi-square statistic was used to test for any significant association with the following hypotheses:

First,

- H_0: There is no difference in attitude towards delinquent behavior between learners from low and high density areas.

- H_1: There is a difference in attitude towards delinquent behavior between learners from low and high density areas. Two tests were conducted for this hypothesis. For the first one, the two categorical variables were Residential density and Question 17 (which had responses for respondents' friends' opinion on underage drinking). The second bivariate test had Residential density and Question 18 (responses on how much of a problem it would be if caught drinking underage)

Second,

- H_0: There is no difference in attitude towards school between learners from low and high density areas.

- H_1: There is a difference in attitude towards school between learners from low and high density areas. For this test, the two categories, Residential Density and attitudes towards school (Question 20) were compared.

Third,

- H_0: There is no difference in attitude towards society/life between learners from low and high density areas.

- H_1: There is a difference in attitudes towards society/life between learners from low and high density areas. For this test, the two categories, Residential Density and attitude towards school/life (Question 9) were compared. The significance level, $\alpha = 0.05$ for all the three tests above.

4 Results

Table 4 give the descriptive statistics obtained using from the sample. We observe that the average age was 17 while the majority of respondents came from High density areas and the majority of respondents were Grade 11.

The results for factor analysis show an R-matrix of $det(R) = 0.001 > 0.000527$, indicating there was no problem of multi-collinearity, while the Kaiser-Meyer-Olkin (KMO) statistics gave a value $= 0.528$, suggesting that the sample was adequate. The Bartlett's test of sphericity had a $p < 0.0001$, which implied that some relationships exist among variables in study. In our analysis, the primary analysis was run producing 9 variables with a cumulative variance percentage of 67%. The secondary analysis was then run and from the component matrix, we were able to classify the 8 factors (Table 5). The extraction sums of squared loadings of the 8 factors had a cumulative percentage of 64 (Table 5).

Findings for the discriminant analysis are summarized as following. The Box's M test gave a $p < 0.0001$, which might be due to violation of multivariate normality. Wilk's Lambda test had a $p < 0.0001$, which was interpreted as there were differences among groups across predictors (Factors), whereas the Canonical Correlation was $\sqrt{0.477} = \eta^2 = 0.691$, suggesting

Table 4: Descriptive summaries of sample characteristics

Variable	Characteristics	Statistics
Age(years)	Min	10
	Mean	17.05
	Max	20
Gender	Male	75 (48.4%)
	Female	80 (51.6%)
Residential Density	High	101 (65.6%)
	Low	53 (34.4%)
Education Level (Grade)	2	1 (0.7%)
	8	7 (4.9%)
	9	6 (4.2%)
	10	26 (18.1%)
	11	87 (60.4%)
	12	17 (11.8%)

Table 5: Factor constructs and the corresponding discriminant function coefficients and the component matrix

Factor	Construct	Standardized discriminant function coefficients	Structure Matrix[‡]
Factor 1	Substance abuse-peer influence (Social)	0.137	0.124 [6]
Factor 2	Community structure and Family Economic status (Environmental)	-0.320	-0.369 [3]
Factor 3	Institutional Support and Parental Guidance	0.665	0.707 [1]
Factor 4	Attitude towards school	0.127	0.088 [7]
Factor 5	Attitude towards delinquency	-0.407	-0.526 [2]
Factor 6	Criminal Record	-0.067	0.015 [8]
Factor 7	Family Structure	0.141	0.188 [5]
Factor 8	Victimisation	0.403	0.356 [4]

[‡]Numbers in square brackets indicate the rankings of coefficients.

69.1% of variability was accounted for. The classification results based on the canonical discriminant function coefficients are given in Table 6. The Kappa statistic value was $\kappa = 0.424$, indicating moderately accurate prediction. Table 7 gives summaries of the results from the research hypotheses.

Table 6: Classification Results[b,c]

		Risk status of Respondent	Predicted Group membership		
			Low risk	High Risk	Total
Original	Count	Low Risk	34	18	52
		High Risk	16	53	69
		Ungrouped cases	6	1	7
	%	Low Risk	65.4	34.6	100.0
		High Risk	23.2	76.8	100.0
		Ungrouped cases	85.7	14.3	100.0
Cross-validated[a]	Count	Low Risk	32	20	52
		High Risk	20	49	69
	%	Low Risk	61.5	38.5	100.0
		High Risk	29.0	71.0	100.0

[a]Cross validation is done only for those cases in the analysis. In cross validation, each case is classified by the functions derived from all cases other than that case.
[b]71.9% of original grouped cases correctly classified.
[c]66.9% of cross-validated grouped cases correctly classified.

Table 7: Summary of Results from Research Hypotheses

Research Hypothesis	Test ($\alpha = 0.05$)	Conclusion
Youths from high density areas exhibit a higher incidence of delinquent behavior	Independent samples t-test	$p = 0.412$ there is no difference in incidence of delinquent behavior
There is a difference in attitude towards delinquent behavior between youths from low and high density areas	Pearson Chi-square test of association	$p = 0.654, p = 0.142$ there is no difference in attitudes towards delinquent behavior
There is a difference in attitude towards school between youths from low and high density areas	Pearson Chi-square test of association	$p = 0.802$ there is no significant difference in attitudes towards school
There is a difference in attitude towards life between youths from high and low density areas	Pearson Chi-square test of association	$p = 0.01$ there is a significant difference in attitude towards life

5   Discussion and Conclusions

Whilst conducting this study, a number of challenges were faced at the outset and during the course of the study. The sample size, 155, for this study was not a suitable representation of the target population. This was further compounded by the sampling procedure which was used, namely convenience sampling. The sample was also highly homogenous as most of the respondents were Grade 11 learners, due to the fact that Grades 10 and 12 were writing examinations. These three limitations constrict the extent to which results of the study can be generalized. Self-reported data was used to obtain information, therefore the reliability on sensitive topics such as drug use and past delinquent acts is questionable. The environment in which the majority of respondents, classroom, in close proximity to each other is a limitation in that some students were seen consulting each other while others might have been nervous despite being assured of confidentiality. Lack of adequate finance was a major limitation as it directly affected the sampling technique and coverage of the study.

Be as it may, from the results we establish that there are some common underlying factors that perpetuate Juvenile Delinquency among High School learners. We also conclude, based on the results that there is no difference in the incidence of delinquent behavior between Learners from Low and High density areas. The results also show that there are no differences in attitude towards delinquency between learners from low and high density areas. However, a significant difference in attitude towards school exists between learners from low and high density areas. A further examination of these results, show that learners tend to uphold delinquency as acceptable. We also note that learners from higher density areas appear to have a negative attitude towards life. Based on these results, we conclude that Juvenile Delinquency among High School Learners in Windhoek is a cultural demeanor as the results are similar regardless of respondents' residential density and location of school.

Based on the above conclusions and insight gained during the whole process of conducting this study, we have come up with a few recommendations to help determine the risk factors that are likely to lead High School learners to engage in delinquent behavior. Schools must maintain student records, that capture information such as parent occupation, family structure, residence and criminal records. For the latter, the schools can work with City of Windhoek Police. Mandatory drug and urine tests must be conducted in schools as they are the most reliable in determining the presence of substance abuse or underage drinking. Part-time employment and recreational opportunities must be created to deter delinquent behavior. Lastly, Intervention and Preventive measures must be designed and targeted at all learners regardless of locality. These recommendations are by no means exhaustive, for we believe if all the requisite assumptions for carrying out such a study were met, we would have more meaningful results, conclusions and recommendations.

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