

Characteristics of Criminals:

The Privileged Offender

**W. Buikhuisen,* E. H. M. Bontekoe, C. v.d. Plas-Korenhoff
and S. van Buuren****

Introduction

In studying the etiology of crime, criminological theories rest, to a large extent, on studies based on registered offenders from the lower social classes. Their living conditions have inspired criminologists to develop so-called social deprivation theories to explain crime. According to these theories factors such as bad housing conditions, inadequate education systems, poor job opportunities, lack of recreational facilities favour the development of criminal behavior. Because of this frame of reference social deprivation theories usually are social class theories (Göppinger, 1980; Mannheim, 1965).

Criminal behavior, however, is certainly not restricted to people with a low SES. As early as 1946 Porterfield was able to show that students too have quite a part in the total volume of crime. He found that compared to registered juvenile offenders the criminal "records" of students were even worse both quantitatively and qualitatively (Porterfield, 1946). It is obvious that criminal behavior of students cannot be explained by the poor social conditions under which many lower class offenders have grown up. Therefore focussing on this category of offenders might help us to increase our knowledge of the origins of crime.

Aim of the Study

In the past it has been argued that in psychology too many theories have been based on research with students, a category which of course is not representative of the general population. In the project to be reported here the results too have been derived from a student population. This has been done not for reasons of convenience, but deliberately. Firstly because we wanted to replicate part of a study in which a group of predominantly lower class registered criminals has been examined comprehensively (Buikhuisen & Meijs, 1983). Secondly because we were looking for a population of offenders who obviously have not grown up under conditions of social deprivation. By controlling this factor we hope to be able to study what other variables might predispose to crime and to see which of these factors have been replicated in research with convicted lower class offenders. We

*Professor of Criminology, Criminological Institute, Garenmarkt 1B, Leyden University, The Netherlands.

**Research Associates, Criminological Institute, Leyden University.

have sought to answer the question whether next to class specific variables like bad housing conditions, lack of recreational facilities, poor educational opportunities, and so on, more general, nonclass specific, criminogeneous factors can be distinguished.

In the meantime such a study might enable us to put the potential criminological relevance of social deprivation theories in the right perspective.

Method

Our sample consists of students matriculated into Leyden University. The sample totals 82 students of both sexes with an average (modal) age of between 20 and 21 years. Because of the specific objective of this study no attempt was made to arrive at a representative sample.

Subjects were volunteers who received a modest payment for their participation in the project.

All subjects were examined comprehensively.

Involvement in Criminal Activities

As involvement in crime is our dependent variable much attention was paid to collecting this information. Since for our population it would be useless to look for officially registered crime, the self report method was applied. All subjects were asked to report whether they had committed particular offences in the past. Two periods were distinguished: the two years preceding the research and the period of their stay in high school.

A list of possible offences was presented comprising different categories like traffic offences, destruction of property (vandalism), crimes of violence, property crimes and offences like abusing social security, evading taxes, not declaring goods at the customs, and so on, which henceforth we will call "evasion crimes."

Deviant Behavior during Childhood

It has been established that persistent juvenile offenders, before getting into trouble with the law, displayed difficulties in living up to the norms and rules of the primary milieu in which they participate (Buikhuisen & Meijs, 1983). Indeed, long before they came into conflict with the law, they had troubles at home, at school and in the neighbourhood in which they lived (Glueck & Glueck, 1950; Göppinger, 1983; West & Farrington, 1977). This observation has led to our working hypothesis that chronic juvenile delinquency should be considered as symptomatic for a more general failing of the socialization process of these boys (Buikhuisen, 1984).

To verify whether this hypothesis holds for student offenders, our subjects were asked to indicate to what extent they had conflicts at home or at school during childhood.

Parental Home

One of the most widely studied topics in criminology undoubtedly is the relationship between parental home and crime. Various factors have been reported as relevant: emotional deprivation (Bowly, 1946), parental rejection (Healy and

Bronner, 1936), child raising practices (Hewitt & Jenkins, 1946), parental attitudes (West & Farrington, 1977), family and life style (Jephcott & Carter, 1954), characteristics of parents (Andry, 1960), and broken homes (Glueck & Glueck, 1950).

More recently Radcliff & Robins (1979) reported family characteristics explaining 28% of the variance in criminality of the children. Here too these observations have been based predominantly on research on offenders with a low SES. To assess the potential relevance of the parental home for student offenders a semantic differential was introduced (Osgood, Suci, & Tannenbaum, 1957). Concepts to be judged were father and mother. The polarities presented referred to parental love, support, control and punishment.

Psychological Traits

The relationship between personality characteristics as measured by paper and pencil tests and criminal behavior has been long studied. Special reference should be made to the Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & Monachesi, 1963), the California Psychological Inventory (CPI) (Gough, 1965) and the Eysenck Personality Inventory (EPI) (Eysenck, 1964).

So far, the results have been controversial (Passingham, 1972; Waldon & Dinitz, 1967), which might be partly explained by not taking into account the differential criminological principle (Buikhuisen, 1979). In our study the following tests were used:

- An abridged version of the MMPI.
- The NPV, a Dutch personality inventory, measuring factors like neuroticism, hostility, social anxiety, egocentrism, dominance and self esteem.
- The Self Control scale and the Responsibility scale from the CPI.
- Spielberger's State-Trait Anxiety Inventory.
- The Rotter Locus of Control scale.
- The Gibson Spiral Maze (impulsivity).

This rather extensive test battery gives us the opportunity to study the relationship between personality traits and crime in a student population.

Psychophysiological Data

One of the more recent developments in criminology is the attention paid to psychophysiological data or more particularly electrodermal responsiveness of offenders. According to Mednick and Volavka (1980) antisocial individuals are decidedly emotionally hyporeactive to stimulation.

In his review Siddle (1977) notes that the results concerning skin conductance recovery and anti-social behavior appear to be quite consistent. Subjects who display anti-social behavior (psychopaths, adult criminals and adolescent delinquents) also display significantly slower skin conductance recovery than do matched controls.

Contradictory evidence has also been reported (Hare, 1978). Part of our study was a psychophysiological examination of our subjects. The experimental paradigm was as follows: the subject received 16 tones by headphones and 3 aversive stimuli (120 DB, 1000 Hz, rise time 10 μ sec). From the continuously recorded

electrodermal responding the following variables were extracted: basal skin conductance, spontaneous fluctuations, rise time, and amplitude and recovery time after presenting the three aversive tones.

Heart rate was simultaneously recorded.

Medical Information

In the medical interview questions were raised about the prevalence of physical complaints, recent visits to general practitioners or specialists and medication.

These more general questions were included in the interview because according to Lewis, Shanok, and Balla (1979), delinquent children have a more negative medical history.

Results

Prevalence of Offences in Our Samples

In Figure 1 we have presented the distribution of the number of self-reported offences by our subjects. Only those offences have been included which according to the Dutch penal law can lead to imprisonment. The average number of

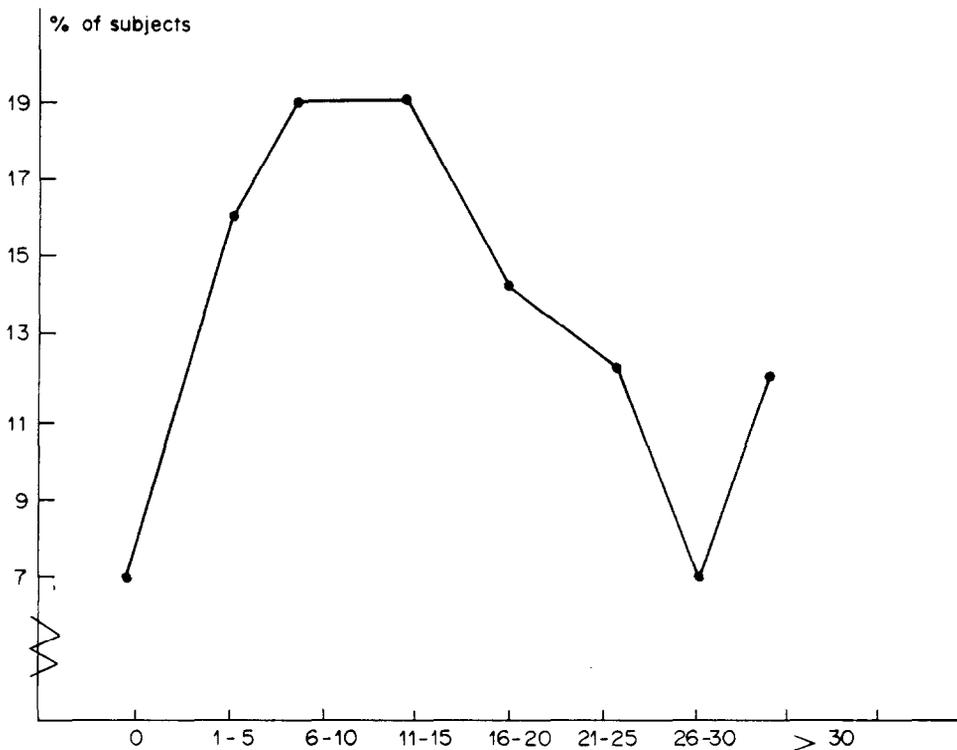


FIGURE 1. Frequency distribution of the number of offences reported.

such reported offences is 15. Twelve percent of our sample reports more than 30 offences, while 7% does not report any offence.

Categorizing Subjects According to Kind and/or Number of Offences

This study focusses on which factors are related to student criminality. One way to explore this question would be by a comparative study. Starting from the frequency distribution presented in Figure 1 we could compose two groups, differing in the number of offences admitted. Unfortunately to arrive at that distribution all offences were lumped together, so no attention was paid to the kind of offence committed. According to the differential criminological principle (Buikhuisen, 1979) this could obscure results. Therefore in the analyses to be reported below we have looked for ways to arrive at categorization of offenders based on the kind of offences committed. Two cluster analyses will be presented:

1. HOMALS, a computerprogram for pluridimensional analysis of categorical data.
2. A factor analysis.

Categorizing According to HOMALS. HOMALS is an abbreviation of Homogeneity analysis by means of Alternating Least Squares (Meulman, 1982).

This computer program produces a spatial representation of response categories of subjects as points in a pluridimensional space. The distance between these points represents similarity as far as direction of responses is concerned. The shorter this distance, the more the response patterns concerned resemble each other. Categories can be created by grouping together response categories which cluster together in a pluridimensional space.

As input in our study we used number and kind of offence committed. The following response categories were distinguished:

- *Theft*: The number of offences reported by the subject is above (+) or below (–) the median of the sample.
- *Evasion criminality**: The number of offences reported by the subject is above (+) or below (–) the median of the sample.
- *Violence*: Here three categories were distinguished. The number of offences reported by the subject is low (–), average (\pm) or high (+).
- *Vandalism*: The number of offences reported is above (+) or below (–) the median of the sample.
- *Traffic violations*: Three categories were distinguished. The number of offences reported by the subject is low (–), average (\pm) or high (+).

In Figure 2 we have presented the corresponding points of the above-mentioned response categories in a two dimensional space. As can be seen, three clusters can be distinguished. These clusters represent the extent to which the subjects are involved in crime. According to this analysis the kind of crime committed

*Not declaring goods at the customs, evading taxes, etc.

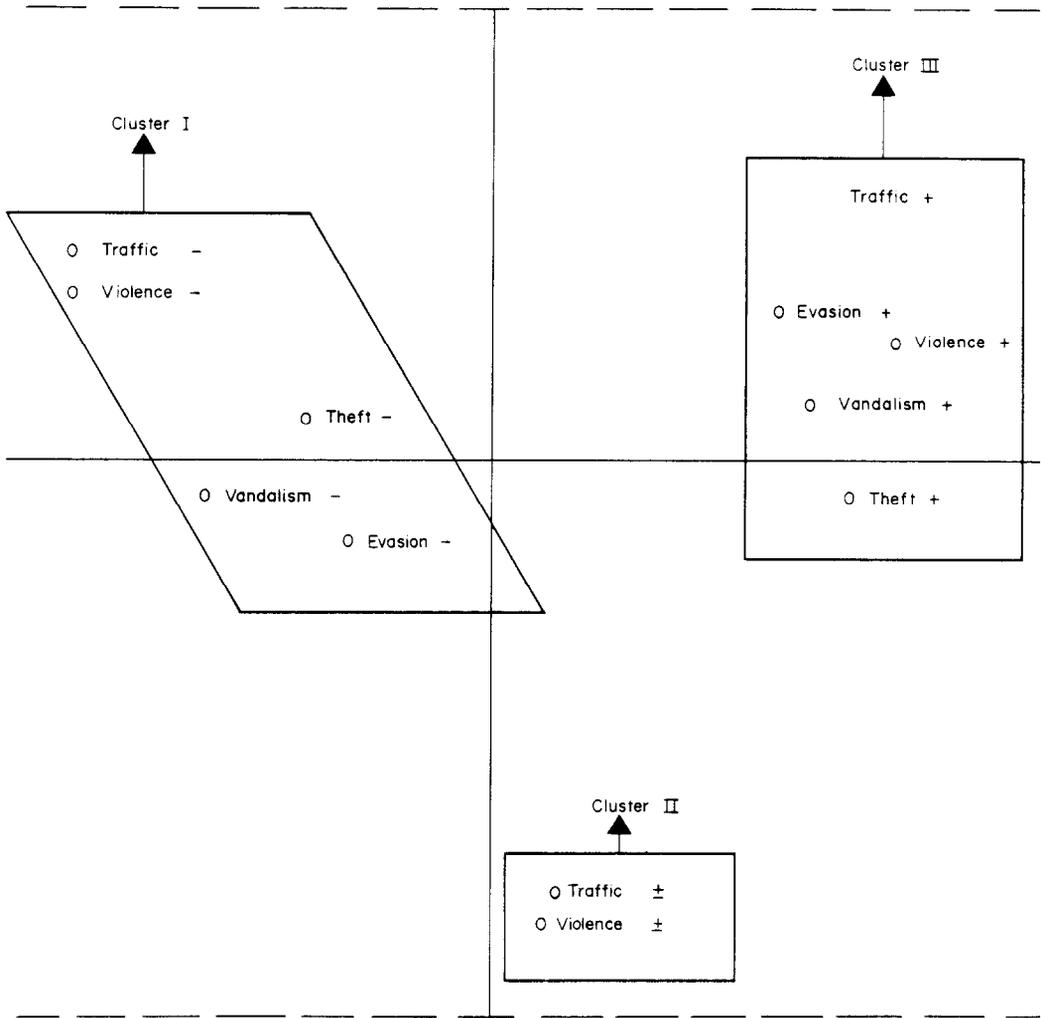


FIGURE 2. Results of HOMALS analysis.

does not contribute to the way response categories cluster. Subjects with a high crime load tend to report much on *all* offences presented and vice versa.

Discriminant Function Analysis on HOMALS Clusters. Based on the results of HOMALS we now can create two groups of subjects whose response pattern corresponds to cluster I and cluster III respectively. In doing so we have distinguished two groups who differ in the extent to which they are involved in criminal behavior. The group with the high crime load are student offenders, the group with a low crime load is the control group. We will now focus on the question whether it is possible to differentiate between these two groups, and to answer it we apply a discriminant function analysis. For this purpose we select those variables which can differentiate significantly between student offenders and control group.

As the number of variables obtained in this way was rather high we looked for ways to reduce this number without losing too much information. This was achieved by either creating a new factor by grouping together variables with similar content or by leaving out those variables which correlated highly with others which were to be included in our analysis.

Table 1 presents the standardized canonical discriminant function coefficients of the various variables and the results of the prediction of group membership based on the equation developed. As can be seen 87% of the subjects were classified correctly.

Firstly it is interesting to see that already during childhood student offenders displayed a different behavior. They were more troublesome at home and at school. In this respect their behavior is quite similar to that of persistent juvenile offenders (Buikhuisen, 1969; Gleuck & Glueck, 1950). Similarities can also be found with regard to the parental home. Notable here is the role of the father. According to our subjects, student offenders were not loved by their father and often beaten by him, a finding which has been replicated for lower class offenders (Glueck & Glueck, 1950; McCord, McCord, & Zola, 1959).

With reference to the observed troublesomeness and the parental discipline at home we quote Peterson and Becker (1965).

In clinical interviews, the parents of delinquents often complain that reasoning just doesn't work with their obstreperous children, and indeed it is possible that the parents have resorted to physical discipline in an effort to control otherwise uncontrollable children, whose tendencies have developed from other determinants. (p. 85)

Of course, from our data it's difficult to tell whether indeed our student offenders were more uncontrollable as children but it is interesting to see that they

TABLE 1
Standardized Canonical Discriminant Function Coefficients

Motoric impulsivity (Gibson)	.45
Locus of control	.35
Negativism	.27
Anxiety	-.65
Hostility	.34
Dominance	.14
Responsibility	.00
Self control	-.27
Illness and medication	.00
Troublesome at home and at school	.46
Mother loves child	-.02
Father loves child	-.35
Father beats child	.41
Mother beats child	-.54
Percentage of cases correctly classified	87
Canonical correlation	.73

are both more impulsive and less anxious. Gray (1972) has pointed out that this combination is negatively related to conditionability, which in turn determines the extent to which a subject is controllable.

Other personality traits characteristic for student offenders are hostility and negativism. This observation is in accordance with results obtained with MMPI studies carried out in the U.S.A. (Hathaway & Monachesi, 1957; Hathaway, Monachesi, & Young, 1960).

Finally differences were found with regard to locus of control. Student offenders too are inclined to think their behavior is more determined by external factors, factors which are beyond their control.

The Factor Analytical Approach. So far we have presented some characteristics of student offenders, starting from clusters produced by HOMALS. In fact these clusters were based on one dimension: the *number* of offences committed by our subjects. So the kind of offences committed did not play a role in this analysis. As can be easily shown, this does make the qualitative aspect irrelevant. In HOMALS the point in the space, representing a certain response category, is in fact the centroid of the points representing the individual responses of our subjects. The more dense this scattergram, the closer the centroid represents the individual points. *Ipsa facto* this reasoning applies to the other response categories. This means that while the *centroids* of certain response categories might be situated close to each other the distance between the corresponding individual points might be considerable for some subjects.

It even implies that for some subjects response categories from *different* clusters could be located more closely to each other than individual points representing response categories *within* a cluster. Therefore there is reason to look for other cluster analysis techniques. A possible alternative could be the factor analysis.

In Table 2 we have presented the results of such a factor analysis after varimax rotation of the factor matrix. The variables selected for this analysis are a good representation of the various areas included in our study. Among them is the type of offence committed. Now, from a differential criminological perspective the most crucial question is: given the obtained factor structure what will be the loading of our offence categories on the factors produced? Or to put it more specifically: to what extent are these factors characterised by relatively high loadings of our dependent variables (type of crimes committed)? As the answer to this question will determine the usefulness of the factor analytical approach we first will analyse the obtained factors from this perspective. The upper part of Table 2 makes clear that committing crimes plays no role in Factor 1. The content of this factor is predominantly determined by a combination of parental home variables and personality traits. Factor 2, however, is completely dominated by the criminal behavior of our subjects. Subjects scoring high on this factor are involved in all kinds of criminal activities.

In Factor 3, on the other hand, only one type of criminal behavior (evasion crimes) is important, and a similar observation applies to Factor 4. There, crimes of violence have a relatively high loading.

Therefore we will label our factors as follows:

- Factor 1: Negative parental home.
- Factor 2: General propensity to criminal behavior.

TABLE 2
Results of the Factor Analysis

Variables	Factor 1	Factor 2	Factor 3	Factor 4
<i>Type of offense committed</i>				
Theft	-.15	.69	-.18	.04
Crimes of violence	.15	.77	.09	.47
Evasion crimes	.19	.52	.52	.15
Traffic offences	.23	.81	.27	.34
Vandalism	-.01	.68	.12	.04
<i>Personality traits</i>				
Self control (Gibson)	-.12	-.15	-.16	-.23
Locus of control	.56	.02	.24	.04
Extraversion	-.03	.02	.09	.63
Negativism	.80	.07	-.10	.18
Psychopathic deviate	.62	.10	-.11	.37
Social anxiety	.10	-.30	-.10	-.67
Hostility	.57	.12	-.31	.05
Dominance	.12	.02	.36	.46
Responsibility (CPI)	-.26	-.12	-.12	-.46
Self control (CPI)	-.66	-.01	-.01	-.52
State anxiety (Spielberger)	.19	-.36	-.03	-.52
Trait anxiety (Spielberger)	.63	-.44	-.19	-.07
Illness and medication	.12	-.03	-.16	.68
<i>Parental home</i>				
Father loves son	-.71	-.24	-.29	.34
Father beats son	.38	.43	-.14	-.11
Mother loves son	-.61	-.04	-.28	.46
Mother beats son	.62	.20	-.08	.08
Troublesome at home (and school)	.29	.67	-.07	.25
<i>Psychophysiological variables (G.S.R.)</i>				
Initial level	.09	-.04	-.80	-.26
Resting level	.16	-.04	-.88	-.24
Spontaneous fluctuations	.03	-.11	-.72	.27
Amplitude	.01	.27	-.85	-.03
Recovery time	-.29	.31	.43	-.39
Heart rate	-.06	-.26	.04	.04
Variance explained	20%	14%	11%	9%

- Factor 3: Committing evasion crimes.
- Factor 4: Committing crimes of violence.

A description of these factors follows.

Factor 1: Negative Parental Home. Two groups of variables dominate Factor 1: personality traits, like negativism and hostility, and parental home. The latter is characterised by bad parent-child relationships. Subjects scoring high on

this factor were not loved by their parents and often beaten, by father and mother. Being raised under such conditions gives rise to personality traits like lack of self control, negativism, hostility, trait anxiety and high scoring on the psychopathic deviate scale of the abridged MMPI. It should be no surprise that the latter is accompanied by having been troublesome at home and at the elementary school. Finally these subjects have an external locus of control (behavior is governed by factors over which the subject has no control) and tend to be fast recoverers.

In conclusion it can be said that in our upper class population a negative parental home affects not so much criminal behavior but the personality development of the subjects concerned.

Factor 2: General Propensity to Criminal Behavior. The most prominent part of this factor is involvement in criminal behavior. Subjects scoring high on this factor have admitted many offences of all the kinds of crime presented; in addition they are troublesome at home and at school.

In this factor deviant behavior goes with low state as well as trait anxiety. Interesting is the role of the parental home and more particularly that of the father. Here too we have a negative relationship in which child beating is common. With regard to psychophysiology: subjects scoring high on Factor 2 tend to have a low heart rate and tend to be slow recoverers.

It is interesting here to make a comparison with Factor 1 in which we have seen that a negative parental home is accompanied by signs of a negative psychological development (feelings of negativism, hostility, anxiety, etc.) but not with criminal behavior, the dominant characteristic of Factor 2. Subjects in Factor 1 tend to be anxious and fast recoverers, while subjects scoring high on Factor 2 are quite the opposite: they have longer recovery times and are "lacking" anxiety.

(This observation is in support of Mednick's, 1977, theory about the basis of criminal behavior.) The results of our study lead to the conclusion that differences in speed of recovery after aversive stimuli could be decisive in cases where subjects are raised under negative parental home conditions. Fast recoverers would tend to develop personality disturbances, while slow recoverers under such circumstances would present a high risk for criminal behavior.

*Factor 3: "Evasion Crimes"**. In Factor 3 only one of our dependent variables — evasion crimes — has a relatively high loading. The most dominant role in this factor is played by the psychophysiological variables. Subjects who admit committing evasion crimes are psychophysiologicaly hyporesponsive. Again this result is in agreement with Mednick's (1977) theory. It is interesting to see, however, that his theory holds especially for this category of relatively harmless offences easily committed by many people, while parental home or personality traits are of secondary importance. Emotional hyperresponsiveness to stimuli favours, in this case, law abiding behavior.

Factor 4: Crimes of Violence. The only dependent variable of any significance in Factor 4 is fighting. Subjects scoring high on this factor have a substantial record of crimes of violence.

In several respects this group differs from the categories discussed so far. Firstly

*Not declaring goods at the customs, evading taxes, etc.

we can see that here criminal behavior goes with a *positive* social environment. According to our subjects they were loved by both their father and mother.

Therefore there is reason to believe—like Christiansen (Mednick & Christiansen, 1977) did—that in this case (and in this population!) individual factors play a more prominent role. Notable for instance is the fact that only in Factor 4 are medical factors related to crime. Violent offenders have paid more visits to general practitioners or medical specialists and have been more often on medication than nonviolent offenders.**

In addition, these violent subjects are characterised by high extraversion, high impulsivity and low anxiety. This combination goes with a low score on the CPI responsibility scale, and a high score on the psychopathic deviate scale of the abridged MMPI. This means there is reason to believe that in this population not so much the combination extraversion, anxiety or neuroticism but the combination extraversion and lack of anxiety favours psychopathic behavior (Eysenck, 1964).

For this category of offenders the contribution of psychophysiological variables is less prominent. If anything these offenders seem to be fast recoverers.

Summary and Conclusions

Social deprivation theories certainly occupy a prominent place in the etiology of crime. Notably they have been used to explain criminal behavior of (registered) offenders from the lower social classes (Mannheim, 1965). It is obvious that these theories must be of restricted significance. They cannot be generalized for instance to criminals who have grown up under favourable social conditions. This raises the question of what then is characteristic for these offenders. To answer this question we examined a group of students. Firstly, by means of the self-report method, we established their criminal "record." Next these subjects were tested and interviewed comprehensively. Attention was paid to the following topics: parental home, psychological traits, medical information and psychophysiological variables. The collected data was analysed in two ways: by carrying out a discriminant function analysis starting from categories derived from HOMALS and by applying a factor analysis.

Maybe the most striking result of the first analysis was that factors which discriminate significantly between offenders and nonoffenders in a student population (negative parental home and personality traits like low anxiety, high impulsivity, hostility and external locus of control) have been associated too with criminal behaviour of registered lower class offenders. This means that these variables may be considered as non-class-specific criminogenic factors.

Our second analysis has emphasized again the importance of the differential criminological approach (Buikhuisen, 1979). Our factor analysis has shown how dangerous it is to lump together all offenders and subsequently compare them with nonoffenders in order to deepen our insight in crime. Among offenders various categories with significantly differing profiles have to be distinguished. By linking up these categories such differences will be flattened or disappear altogether.

Violations of this differential criminological principle might explain why for

**In another analysis we observed that these violent offenders scored high too on a scale measuring somatic complaints.

variables like extraversion, anxiety, impulsivity and even parental home the results of the pertinent research is so often controversial. Another interesting example is Mednick's (1977) theory about the relevance of slow recovery for our understanding of crime. When, according to HOMALS, we compared offenders and nonoffenders among students, (not taking into consideration the kind of crime committed), psychophysiological variables played no role at all.

The reason for this can be seen in Table 2. Recovery time has opposite loadings in the four factors produced. Violent offenders for instance are fast recoverers while subjects committing evasion crimes or crime in general tend to have long recovery times.

We have emphasized the need to reassess the general significance of these theories. Although their apparent validity cannot be denied, the data collected so far to support them is not without controversy. The amount of variance explained by these theories is bound to be limited since the majority of people living under socially deprived conditions refrain from committing crimes.

Here we arrive at what we think is one of the main flaws of social deprivation theories. These theories neglect the fact that eventually it is the interaction between an individual (with his individual make-up) and his environment which determines his behavior. In this interaction environmental factors are not objective entities. Whatever impact they may have depends on the way they are perceived, which in turn is influenced by individual and social factors. Or to put it in the words of Mannheim (1965, p. 202): "Only by producing a certain state of mind can any . . . social factor lead to crime." Therefore, to increase the significance of social deprivation theories we have to put them in a psycho-social perspective. As long as this psychodynamic aspect is neglected the value of these theories is bound to be limited.

References

- Andry, R. G. (1960). *Delinquency and parental pathology*. London: Methuen.
- Bowlby, J. (1946). *Forty-four juvenile thieves*. Baillière, Tindall & Cox.
- Buikhuisen, W. (1969). Research on teenage riots. In P. Meadows, & E.H. Mizruchi (Eds.), *Urbanism, urbanization, and change: Comparative perspectives*. London: Addison-Wesley Publishing Company.
- Buikhuisen, W. (1979). An alternative approach to the etiology of crime. In S. A. Mednick & S. Giora Shoham (Eds.), *New Paths in Criminology, Interdisciplinary and intercultural explorations*. Lexington, MA: Lexington Books.
- Buikhuisen, W. (1984). Eine biosoziale Theorie zur Frühkriminalität. In H. Göppinger & R. Vossen (Eds.), *Humangenetik und Kriminologie; Kinderdelinquenz und Frühkriminalität*. Stuttgart: Ferdinand Enke Verlag.
- Buikhuisen, W. & Meijs, B. W. G. P. (1983). A psychosocial approach to recidivism: an application of a latent variable causal modeling technique. In K. T. van Dusen & S. A. Mednick (Eds.), *Prospective studies of crime and delinquency*. Boston, MA: Kluwer-Nijhoff Publishing.
- Eysenck, H. J. (1964). *Crime and personality*. London: Routledge & Kegan Paul Ltd.
- Glueck, S., & Glueck, E. (1950). *Unraveling juvenile delinquency*. New York: The Commonwealth Fund.
- Gough, H. G. (1965). Cross cultural validation of a measure of social behavior. *Psychological Reports*, 17, 374-378.
- Göppinger, H. (1980). *Kriminologie* (4^e druk). München: C. H. Beck'sche Verlagsbuchhandlung.
- Göppinger, H., Bock, M., Jehle, J. M., & Maschke, W. (1983). *Der Täter in seinen sozialen Bezügen*. Berlin Heidelberg: Springer-Verlag.
- Gray, J. A. (1972). The psychophysiological basis of introversion-extraversion: A modification of Eysenck's theory. In V. D. Nebylitsyn & J. A. Gray (Eds.), *The biological bases of individual behavior*. New York: Academic Press.

- Healy, W., & Bronner, A. (1936). *New light on delinquency and its treatment*. New London, CT: Yale University Press.
- Hewitt, L. E., & Jenkins, R. L. (1946). *Fundamental patterns of maladjustment*. Michigan: D. H. Green.
- Hare, R. D. (1978). Electrodermal and cardiovascular correlates of psychopathy. In R. D. Hare & D. Schalling (Eds.), *Psychopathic behaviour: Approaches to research* (pp. 107-145). New York: John Wiley & Sons.
- Hathaway, S. R., & Monachesi, E. D. (1963). *Adolescent personality and behavior: MMPI Patterns*. Minneapolis: University of Minneapolis Press.
- Hathaway, S. R., & Monachesi, E. D. (1957). The personalities of predelinquent boys. *Journal of Criminal Law, Criminology and Police Science*, 48, 149-163.
- Hathaway, S. R., Monachesi, E. D., & Young, L. A. (1960). Delinquency rates and personality. *Journal of Criminal Law, Criminology and Police Science*, 50, 433-440.
- Jephcott, A. P., & Carter, M. P. (1954). The social background of delinquency. Cited by Sophia M. Robison, (1960) in *Juvenile Delinquency*, New York: Holt.
- Lewis, D. O., Shanok, S. S., & Balla, D. A. (1979, April). Perinatal difficulties, head and face trauma, and child abuse in the medical histories of seriously delinquent children. *American Journal of Psychiatry*, 136, 419-423.
- Mannheim, H. (1965). *Comparative criminology*. London: Routledge & Kegan Paul.
- McCord, W., McCord, J., & Zola, I. K. (1959). New York: Columbia University Press.
- Mednick, S. A., & Volavka, J. (1980). Biology and crime. In N. Morris & M. Tonry (Eds.), *Crime and justice: An annual review of research* (Vol. 2). Chicago: University of Chicago.
- Mednick, S. A., & Christiansen, K. O. (1977). *Biosocial bases of criminal behavior*. New York: Gardner Press.
- Meulman, J. (1982). *Homogeneity Analysis of Incomplete Data*. M&T series Vol 1. Leiden: DSWO Press.
- Osgood, Ch. E., Suci, G. J., & Tannenbaum. (1957). *The measurement of meaning*. Urbana: University of Illinois Press.
- Passingham, R. F. (1972). Crime and personality: a review of Eysenck's theory. In V. D. Nebylitsyn & J. A. Gray (Eds.), *The biological bases of individual behavior*. New York: Academic Press.
- Peterson, D. R., & Becker, W. C. (1965). Family interaction and delinquency. In H. C. Quay (Ed.), *Juvenile delinquency*. Princeton, NJ: D. Van Nostrand Company.
- Porterfield, A. L. (1946). *Youth in trouble: Studies in delinquency and despair*. Forth Worth: Texas Christian University.
- Radcliff, J., & Robins, L. N. (1979). Risk factors in the continuation of childhood antisocial behavior into adulthood. *International Journal of Mental Health*, 7, 96-116.
- Siddle, D. A. T. (1977). Electrodermal activity and psychopathy. In S. A. Mednick & K. O. Christiansen (Eds.), *Biosocial bases of criminal behavior* (pp. 199-213). New York: Gardner Press, Inc.
- Waldon, G., & Dinitz, S. (1967). Personality attributes of the criminal: Analysis of research studies 1950-1965. *Journal of Research of Crime and Delinquency*, 185-202.
- West, D. J., & Farrington, D. P. (1977). *The delinquent way of life*. London: Heinemann.