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## FOLLOW UP STUDIES OF INTROVERTED CHILDREN. III: RELATIVE INCIDENCE OF CRIMINAL BEHAVIOR

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### INTRODUCTION

Much has been written concerning personality characteristics of individuals who come to be classified as delinquent<sup>1</sup> or criminal<sup>2</sup> in their behavior. Although there has been some difference of opinion, most criminologists have not only suggested that there are recognizable personality differences between criminals and non-criminals, but they also suggest that personality differences between the two groups are present and may be recognized even before the one group really manifests delinquent or criminal behavior. Actually, the factors which are usually believed to contribute toward delinquency are not simply described as personality factors, but are thought to represent a complex interplay of many forces: somatic, temperamental, intellectual, socio-cultural, etc. Various writers have concentrated on one or another of these forces and have ordinarily concluded that in predicting crime and delinquency, one must somehow take into consideration more than one or two factors—that one must take a multidimensional approach.

In their study, "Unravelling Juvenile Delinquency" (2), the Gluecks have taken such an approach. It is beyond the scope of the present paper to review their findings. However, one finding is of special relevance to this paper, which is one of a series of follow-up studies of introverted children. Namely, the Gluecks found that their group of delinquent boys were distinguishable temperamentally from their non-delinquents in that a larger proportion of the former were likely to be extroverted. The delinquents were also secondarily more likely than the others to show a mixture of extroversive-introversive trends; and they were less likely than the non-delinquents to manifest introversive trends.

In their series on "Follow Up Studies of Shy Withdrawn Children" (3, 4), the authors began by attempting to evaluate the later adjustment of introverted children. Since in the first study it was found that the subjects appeared to be surprisingly well adjusted in adult life, the authors decided to study the incidence of mental hospital admissions in the introverted group relative to extroverted and ambiverted groups. In that study, the introverted group turned out to have the lowest incidence of mental hospital admissions. Now, in this third study, the groups are compared

<sup>1</sup> The term "delinquency" is used in this paper to refer to the type of acts recognized by the law as juvenile delinquency.

<sup>2</sup> The term "crime" is used in this paper to refer to acts prohibited by the penal law which are committed by individuals over the statutory age for specialized treatment of juveniles.

with each other with regard to the relative incidence of delinquent and criminal behavior. It was thought that such a study would be of particular interest in the light of the above-reported findings of Sheldon and Eleanor Glueck. The present approach also has a particular advantage of being a true long-term follow-up study rather than a retrospective or cross-sectional study.

#### ORIGINAL GROUP OF SUBJECTS

Subjects were selected from the files of the Dallas Child Guidance Clinic. There was a total of 600 subjects, all white males. The subjects were seen at the Clinic from 16 to 31 years prior to the present study and ranged from two to 18 years of age at the time they were seen at the Clinic. At the time of follow-up (1954), subjects ranged from 26 to 49 years of age. The average subject was seen at the Clinic 28 years prior to follow-up. He was nine years old when first seen at the Clinic and 37 years old at the time of follow-up. All subjects had a record in the Clinic of a comprehensive social history, one or more psychological examinations (including the Stanford-Binet Intelligence Scale), and a psychiatric interview. All subjects had a Binet I.Q. of 80 or above, and cases with physical conditions which might obscure the clinical picture (with reference to the child's behavior) were not included. Most of the cases had been classified as diagnostic or consultation cases and recommendations and advice had been given; but there was no continuous treatment by the Clinic staff. The I.Q.'s ranged from 80 to 155 and the mean was 102.

Each case was also classified independently by three judges (3) according to three categories: Introverts, Extroverts, and Ambiverts (Mixed).<sup>3</sup> Only those cases were used in which the opinions of the three judges were unanimous.

#### PROCEDURE

The list of 600 subjects was checked against the files of the Dallas County Juvenile Department; the Dallas City-County Boys Industrial School at Hutchins, Texas; the Gatesville (Texas) State School for Boys; the Police Department of the City of Dallas; the Sheriff's Office of the County of Dallas; and the Texas Prison System at Huntsville, Texas. Summaries were obtained from these institutions of all cases found in their files.

#### FINAL GROUP OF SUBJECTS

It was found, in checking the files of the various penal and correctional institutions, that out of the list of 600 cases, one of the Introverts, 42 of the Extroverts, and six of the Ambiverts had already had some record of delinquency before the time they were seen at the Child Guidance Clinic. Since the presence of aggressive, destructive behavior was used by the judges as part of the criteria for classifying the subjects into the three categories, it seemed to beg the question to some extent if the subjects

<sup>3</sup> Introverts were those children showing predominantly shy, withdrawn, anxious or fearful behavior, those who were tending to develop neuroses, or those who were bothering themselves rather than others. Extroverts were those showing behavior problems, those who were acting out their difficulties, or those who were bothering other people. Ambiverts were those showing some characteristics of each of the above groups.

who had already manifested some delinquency were included in the follow-up statistics. As a result, it was necessary to exclude subjects who came to the attention of legal authorities before having been seen at the Clinic.

The total number of subjects was therefore reduced to 551. The number of Introverts was 165; there were 224 Extroverts; and there were 162 Ambiverts.

#### RESULTS OF FOLLOW-UP

Out of the list of 551 cases, 5% of the Introverts, 11% of the Ambiverts, and 25% of the Extroverts were found to have had a record of delinquent and/or criminal behavior at some time in the files of one or more of the institutions whose records were checked. These figures are shown in Table I. The difference in incidence of such behavior between the Extroverts and the two other groups is significant in both cases at better than the .01 level of confidence. The difference between the Introverts and Ambiverts is significant at the .05 level.

There were 68 subjects who were found to have had a record of juvenile delinquency. Two percent of the Introverts, 22% of the Extroverts, and 9% of the Ambiverts became delinquent. The difference between any two of these percentages is significant at the .01 level.

A total of 35 subjects (3% of the Introverts, 10% of the Extroverts, and 5% of the Ambiverts) were found to have committed crimes in adult life. The difference between the Introverts and Extroverts is significant at the .01 level. The difference between the Ambiverts and Extroverts is significant at the .05 level in the stated direction. And the difference between the Introverts and Ambiverts is not significant even at the .10 level.

TABLE I  
RESULTS OF FOLLOW-UP: INCIDENCE OF DELINQUENCY AND CRIME

Group	N	Incidence of Delinquency and/or Crime		Incidence of Delinquency		Incidence of Crime		Incidence of Delinquency Only		Incidence of Crime Only	
		N	%	N	%	N	%	N	%	N	%
Introverts	165	8	4.84	4	2.42	5	3.03	3	1.82	4	2.42
Extroverts	224	57	25.44	50	22.32	22	9.82	35	15.63	7	3.13
Ambiverts	162	18	11.11	14	8.64	8	4.94	10	6.17	4	3.47
Total	551	83	15.06	68	12.34	35	6.35	48	8.71	15	2.72

TABLE II  
RESULTS OF FOLLOW-UP: INCIDENCE OF CRIME AMONG DELINQUENTS AND NON-DELINQUENTS

Group	N	Delinquents Incidence of Crime		N	Non-Delinquents Incidence of Crime	
		N	%		N	%
Introverts	4	1	25.00	161	4	2.48
Extroverts	50	15	30.00	174	7	4.02
Ambiverts	14	4	28.57	148	4	2.70
Total	68	20	29.41	483	15	3.12

As can be seen in Table II, there were 483 subjects who were not found to be delinquent. Of these, however, there were 15 subjects (2.5% of the non-delinquent Introverts 4% of the non-delinquent Extroverts, and 2.7% of the non-delinquent Ambiverts) who committed offenses in adult life. There were no significant differences between these three groups in the percentages who first came to the attention of legal authorities in adult life.

Of the 68 cases found to have been juvenile delinquents, 20 (25% of the delinquent Introverts, 30% of the delinquent Extroverts, and 29% of the delinquent Ambiverts) were found to have continued to commit crimes in adult life. There were no significant differences between the percentages of introverted, ambiverted, and extroverted juvenile delinquents who later committed crimes in adult life.

It should be noticed, then, that although there were no significant differences between the percentages of juvenile delinquent Introverts, Ambiverts, and Extroverts who later committed crimes or between the percentages of non-delinquent Introverts, Ambiverts, and Extroverts who later committed crimes, the trend in each case is that the Extroverts are most likely and the Introverts are least likely to commit crimes in adult life. When the delinquent and non-delinquent groups had been combined, (and the *N*'s were larger), the differences between the Extroverts and each of the other two groups were significant.

In comparing the delinquents as a group and non-delinquents as a group in incidence of adult crime, the results are more striking. Of 68 delinquents, 20 later committed crimes; but of 483 non-delinquents only 15 later committed crimes. The difference is significant at better than the .01 level of confidence.

#### FURTHER ANALYSIS OF SUBJECTS

On the average, the Introverts were 8.2 years of age when first seen at the Child Guidance Clinic, the Extroverts were 10.3 years old, and the Ambiverts were 8.4 years old. The differences in age between the Introverts and Extroverts, and between the Ambiverts and Extroverts are significant at the .01 level. The difference in age between the Introverts and Ambiverts is not significant even at the .10 level. These relationships hold true for both the Offender (subjects with records of delinquency and/or crime) and the Non-Offender (subjects with no records of delinquency or crime) groups, though in the Non-Offender group the differences are significant at only the .05 level. Furthermore, the Offender Extroverts were seen at an older age than the Non-Offender Extroverts (difference significant at .01 level). However, there were no significant differences in age of referral between the Offenders and Non-Offenders in either the Introvert or Ambivert groups. In other words, extroverted children were referred to the Child Guidance Clinic later than the other children, and the extroverted children who were going to become delinquents or criminals were referred even later than the other Extroverts. No such patterns were noted in the Introvert and Ambivert groups. In effect, no relation can be seen between age of referral to the Child Guidance Clinic and later delinquent or criminal behavior except to the Extrovert group.

Though there may be many possible reasons for such later referral, the present study does not provide more than a stimulus for speculations. At first glance at the

results, one might speculate, for example, that the children who were seen early at the Clinic might have been prevented from developing delinquent or criminal behavior. But one would also have to assume that some highly effective treatment and prevention must have taken place in the course of only a very few diagnostic interviews and the giving of some direct advice to parents. However, even if such were the case, it would still not be clear why the same pattern would not hold true for the Introverts and Ambiverts, nor would it be clear why the Non-Offender Extroverts were referred later than the Non-Offender Introverts or Ambiverts.

The age of the subjects at the time of follow-up was also computed. Subjects ranged in age from 26 to 49 years. The Introverts and Ambiverts had a mean age of 36 years at the time of follow-up, and the Extroverts had a mean age of 39 years. The difference in age between the Extroverts and either of the other two groups is significant at the .01 level of confidence. This means that the Extroverts at time of follow-up were about three years older than the other subgroups and therefore had three more years to become known as legal offenders.

Since no subject was younger than the age of 26 at time of follow-up, there is no question about the fact that from the age standpoint all subjects had a complete and equal opportunity to become known as juvenile delinquents. However, since at time of follow-up the Extroverts were an average of approximately three years older than the other two groups, there is raised the question of whether a larger proportion of Introverts and Ambiverts would have become known as criminal offenders if they had been an average of three years older. Actually, in comparing the three groups at age of follow-up by a method of cumulative frequency ogives, the groups are found to differ in age not only at the mean; but at any given age from the age of 32 through the age of 45 the cumulative percentage of Extroverts is significantly (.01 level) smaller than that of the other two groups. Although 41% of the subjects were older than 38, no subject committed an adult criminal offense for the first time later than the age of 38. Still, the fact remains that in the age range in which there were differing proportions of Introverts and Extroverts, some subjects became first offenders. For this reason, there may be doubt whether the differences found between the Extroverts and the other two groups in incidence of adult crimes would hold up if the age factor were controlled.

However, since all subjects had reached the age of 26 at the time of follow-up, a calculation was made of the proportions of each of the three groups who committed crimes as adults at or before the age of 26. When the age factor was controlled in this manner, the difference between the percentages of Introverts and Extroverts who committed crimes as adults was significant at the .01 level in the indicated direction; and although the other differences were not statistically significant, the trends were in the expected direction. The results, then, suggest that the Extroverts actually are proportionately more likely than the others to commit not only juvenile delinquent acts but also crimes in adult life.

Although among juvenile delinquents there is a trend in favor of the possibility that the Introverts would be more likely than the Extroverts to "outgrow" the delinquent pattern of behavior, it appears that the fact of whether a child is delinquent or not is more predictive of adult crime than his classification as Introvert, Extrovert,

or Ambivert. In other words, the introverted child who is juvenile delinquent appears to be more likely than the extroverted child who is not delinquent to commit a crime in adult life. One (25%) out of the four delinquent Introverts committed a crime in adult life, whereas seven (4%) of the 174 non-delinquent Extroverts committed a crime in adult life. In the case of the Introverts, the *N* is too small to allow the differences to be considered statistically significant. But if the Ambivert delinquents are compared with the Extrovert non-delinquents, the *N* is sufficient to result in a significance of difference in the stated direction at the .01 level.

One further difference between subgroups is apparent in their mean I.Q.'s. The mean I.Q. of the Introverts, when tested at the Child Guidance Clinic, was 105; the mean of the Extroverts was 99; and the mean of the Ambiverts was 103. The differences between the Extroverts and the other two groups is significant at the .01 level. In the indicated direction, the difference between the Introverts and Ambiverts is significant at the .10 level. All subgroups have mean I.Q.'s which are Average, and the few points difference would not seem to be of great significance in the interpretation of results of the study. However, it is of interest that the children who presented introversive symptoms had higher I.Q.'s than the children with symptoms of an extroversive type, and that the children with mixed symptoms had I.Q.'s in between the others. These trends hold true for both the Offender and Non-Offender groups, except that the Ambiverts in the Offender group had a lower mean I.Q. than the Offender Extroverts. When the *N* is broken down this way into Offender and Non-Offender groups, some differences are significant at only the .10 level in the indicated direction. Furthermore it was found that the mean I.Q. of the Non-Offender group as a whole was 103, while the mean I.Q. of the Offender group was 97. This difference is significant at the .01 level. There are many possible reasons for such I.Q. differences and, again, the present study does not provide much more than a stimulus for further study. It may be, for example, that all the subgroups actually possess the same basic intellectual endowment, but that, for various possible reasons, the Extroverts are not able to score as high when tested; or, for example, it may be that because of basic differences in intelligence, the children developed different modes of behavior.

Much has been written about the intelligence of criminals (or delinquents) as compared with non-criminals, and varying results have been reported in the literature. Some writers who have found the criminal group to have lower intelligence test scores have proposed that the results may not necessarily mean that legal offenders are less intelligent than law-abiding individuals, but that the results may only mean that the more intelligent offenders have escaped detection. To some extent at least, such an argument is invalidated by the results of the Gluecks' study (2). In that study, the non-delinquents were so diagnosed not only because they did not have a court record, but also because a social and psychiatric investigation was made which showed that they were free from delinquent behavior. When the I.Q.'s of the delinquents and non-delinquents were compared, the non-delinquents obtained a significantly higher score (accounted for by a higher verbal score). These results occurred in spite of the fact that the delinquents and non-delinquents were matched as to total I.Q. (not allowing more than a ten-point difference).

Attention should be drawn to the fact that in the present study subjects were limited to ones with I.Q.'s of 80 or above. If subjects with low I.Q.'s were included, the absolute means would have been lower. However, there is little reason to assume that the relative standings would have been different.

Summarizing, then, with regard to the differences in I.Q. between the groups, there were significant differences between the Introverts, Extroverts, and Ambiverts; and there was also a significant difference between the Offender and the Non-Offender groups. The order, going from highest to lowest mean I.Q., was as follows: Non-Offender Introverts, Offender Introverts, Non-Offender Ambiverts, Non-Offender Extroverts, Offender Extroverts, and Offender Ambiverts.

#### DISCUSSION OF RESULTS

The results of this study tend to corroborate those of some other workers in the field of criminology, notably the Gluecks (2), who have stated that extroverted children are more likely than introverted children to become juvenile delinquents.

This study indicates also that ambiverted children are more likely than Introverts but less likely than Extroverts to become delinquent. This finding, too, corroborates the results reported by the Gluecks.

In the Gluecks study, as in most other studies, individuals who had already become recognized delinquents were used as subjects. Differences between delinquents and non-delinquents were noted, and then these differences were proposed to be predictive of delinquency. It is usually questionable, in such studies, whether the obtained differences between the delinquents and non-delinquents were actually present before one of the groups became delinquent. The present study may contribute toward answering such questions because it is truly a follow-up of children who were not yet recognized as delinquent when first examined.

While the results of the present study indicate that the Extroverts are more likely than the other two groups to become juvenile delinquents, there could be some question as to whether the three groups differ in the probability that a larger percentage of one group rather than another will commit crimes in adult life. Although there were no significant differences between the percentages of juvenile delinquent Introverts, Ambiverts, and Extroverts who later committed crimes, or between the percentages of non-delinquent Introverts, Ambiverts, and Extroverts who later committed crimes, the trend in each case is that the Extroverts are most likely and the Introverts are least likely to commit crimes in adult life. And when the delinquent and non-delinquent groups had been combined, the differences between the Extroverts and each of the other two groups were statistically significant.

It has been estimated by other writers that only about 10% to 20% of young delinquents tend to prolong delinquency into adult years (1). In the present study, 29% of the juvenile delinquents went on to commit crimes as adults. The results, however, should be evaluated in the light of the fact that all the subjects were drawn from a child guidance clinic population and that the numbers in the subgroups were not necessarily proportioned to correspond either to the child guidance clinic population or to the population at large.

Actually, however, the figures on the records of incidence of delinquency and crime

in these subjects are undoubtedly too low. It is not known how many of the subjects classified as non-delinquent or non-criminal may actually have had criminal records in locations other than those explored in the present study. Primarily for this reason, the results of this study are not meant to be comparable with national trends of incidence of delinquency and crime.

On the other hand, the incidence of delinquency and crime in the three subgroups of subjects (Introverts, Extroverts, and Ambiverts) are comparable statistically because each subject had an equal opportunity to be located in the institutional files. Although it should be mentioned that there may have been migratory differences between the subgroups, the author is not acquainted with any evidence which would indicate that such a factor as geographical mobility might have caused any distortion of the results of the study.

Of the 35 subjects who committed adult crimes, 20 of them, or 57%, had been juvenile delinquents. Although these figures would seem to suggest that a large proportion of adult criminals have been juvenile delinquents, one must again keep in mind the fact that a child guidance population is likely not to be a representative population. Furthermore, and perhaps more important, the subjects in this study were not necessarily drawn to be representative even of the child guidance population.

The results of the present study all point to the likelihood that extroverted boys are more likely than either introverted or ambiverted boys to become delinquent and/or criminal. Perhaps the most frequent pattern of delinquency is one in which the individuals were extroverted children. But if one can speak at all in terms of delinquent personality patterns, it seems likely that there is more than one pattern. Certainly all delinquents are not classified as previously extroverted children. And, of course, not all extroverted children become delinquent. Although some research has been done on the factors which may go together to cause delinquency, further studies along such lines are needed. Forces which may contribute to delinquency among children of a certain temperament, etc., may not do so among other children; and what would be prognostic of delinquency in one group may even be prognostic of social adjustment in another.

#### SUMMARY AND CONCLUSIONS

This study was undertaken in order to investigate, by means of a long-term follow-up study of male children seen in a child guidance clinic, the relative incidence of later delinquent and criminal behavior among introverted, extroverted, and ambiverted children. The subjects were seen at the Dallas Child Guidance Clinic an average of 28 years prior to the follow-up. On the basis of their Clinic histories, subjects were classified as Introverts, Extroverts, and Ambiverts. There were originally 600 subjects.

The list of subjects was checked against the files of various penal and correctional institutions in Texas. It was found that some of the subjects had already had some record of delinquency before the time they were seen at the Child Guidance Clinic. These subjects were excluded from the study, and the final group consisted of 551 subjects.

The results corroborate those of some other workers in the field of criminology

who have stated that extroverted and ambiverted children, in that order, are more likely than introverted children to become juvenile delinquents.

The results also suggest that the Extroverts are proportionately more likely than the Introverts or Ambiverts to commit not only juvenile delinquent acts but also crimes in adult life.

In the present study, the delinquent children were markedly more likely than the non-delinquents to commit crimes in adult life.

Although among juvenile delinquents there is a trend in favor of the possibility that the Introverts would be more likely than the Extroverts to "outgrow" the delinquent pattern of behavior, it appears that whether a boy is delinquent or not may be more predictive of adult crime than his classification as Introvert, Extrovert, or Ambivert.

A statistical analysis of the differences between the I.Q.'s of the Introverts, Extroverts, and Ambiverts; between the I.Q.'s of the Offender and Non-Offender groups; and between the ages of the Introverts, Extroverts, and Ambiverts at time of referral to the Clinic revealed some significant differences. These data were incidental to the purpose of the study, but provide further ideas concerning differences between the groups.

Perhaps the most frequent pattern of delinquency is one in which the individuals were extroverted children. However, all delinquents are not classified as previously extroverted children, and not all extroverted children become delinquent. There is a need for further studies investigating the various factors which may go together to produce delinquency. It is possible that a factor which may be prognostic of delinquency within one constellation of factors may be prognostic of non-delinquency within some other constellation.

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