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EPIDEMIOLOGY AND TREATMENT OF MENTAL HEALTH PROBLEMS IN JUVENILE DELINQUENTS

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Abstract — In an effort to establish the comorbidity rates of various mental health problems and juvenile delinquency and to determine the most efficacious treatments for such dually diagnosed youths, over 75 publications were reviewed. Despite a dearth of methodologically sound findings, some tentative conclusions were possible. First, in addition to conduct disorder, several other diagnosable mental disorders appear to occur frequently in the population of juvenile delinquents. These problems include personality, affective, attention deficit hyperactivity, and substance abuse disorders, and mental retardation. Most reported treatment studies were for conduct problems, although there were a few reports of interventions for sexual disorders, substance abuse prevention, and mental retardation, most of which were somewhat successful on a short-term basis. Reasons for the lack of high quality empirical studies of the mental health problems of juvenile delinquents were proposed, and the importance of increasing our knowledge base and improving service delivery for such comorbid disorders was stressed.

INTRODUCTION

The prevalence of juvenile delinquency has long been a concern of the criminal justice system. Certainly the phenomenon is of paramount social importance in the United States, as the rates of juveniles who confess to committing at least one chargeable offense has been reported to be up to 88% (Williams & Gold, 1982). Arrest rates reached 1.4 million juveniles in 1986, and over \$1 billion is spent annually in maintaining the United States juvenile justice system (Patterson, DeBaryske, & Ramsey, 1989). Furthermore, recidivism among juvenile offenders, or the rate of repeat offenses, is high (30%, Ganzer & Sarason, 1972), suggesting that certain juveniles are at risk for developing long term patterns of criminal behavior. Indeed, Loeber (1982) cited evidence that antisocial or criminal behavior is stable over time for a subgroup of juveniles who commit delinquent acts. Certainly, then, it is important to delineate the factors that predict juvenile delinquency and, in particular, the characteristics that distinguish those juveniles with patterns of delinquency from those that are one time offenders. Since the 1950s, psychologists (e.g., Glueck & Glueck, 1950) have become interested in identifying these factors; and several theories have been proposed in recent years regarding the development (e.g.,

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Loeber, 1990; Patterson et al., 1989; Simmons, Whitbeck, Conger, & Conger, 1991; Thornberry, 1987) and classification (e.g., Quay, 1964) of delinquent behavior.

One category of variables that has been proposed as predicting both delinquency and recidivism is mental health disorder (Ganzer & Sarason, 1972), including psychopathology, personality disorders, and cognitive impairment. It has been documented that mental disorder appears to exist at a high rate among delinquent populations (McManus, Alessi, Grapentine, & Brickman, 1984) and that these juveniles often may have major concomitant and subsequent problems in functioning (Patterson et al., 1989).^{*} Furthermore, researchers stress that the development and evaluation of mental health interventions for juvenile delinquents is needed; not only are the mental health needs of this population underserved (Dembo, LaVoie, Schneider, & Washburn, 1987; Knitzer, 1984), resulting in unnecessary suffering for these youths, but lack of mental health treatment may actually contribute to increased rates of recidivism (McManus, Alessi, Grapentine, & Brickman 1984) and may result in the high rate of multiple mental health disorders reported in adults who have been arrested (Abram & Teplin, 1991).

Although mental health disorders in general have been identified as a problem in juvenile delinquency, few detailed epidemiological data have been collected about the rates of occurrence of various disorders within this population (Yarvis, 1972). Even less information is known about juvenile delinquents' response to mental health treatment. The purpose of the present paper is to present the existing research on the co-existence of juvenile delinquency and mental health disorder. Therefore, both the available literature on the prevalence of specific mental health disorders in incarcerated juvenile delinquents as well as their response to mental health treatment will be summarized. Because the number of such studies is limited, also considered will be findings from samples of youths who demonstrate delinquent-like antisocial behavior, but who have not necessarily come into contact with the legal system.

EPIDEMIOLOGY

For purposes of clarity, the mental health disorders discussed will be organized into the following categories: major affective disorders, disruptive behavior disorders (conduct disorder and attention deficit

^{*}Interestingly, a recent study (Cohen et al., 1990) indicates that youths incarcerated in correctional programs do not differ behaviorally from youths in psychiatric hospitals, leading the authors to conclude that youths with serious mental disorders may be placed in correctional institutions.

disorder), anxiety disorders, personality disorders, psychotic disorders, mental retardation, and substance abuse.

Major Affective Disorders

Several types of data are available to suggest an association between depression and acting out behavior problems. Loeber (1990) presents data indicating that depressed mood in children can serve as a predictor of later delinquency (e.g., stealing, physically attacking others). Another body of literature has demonstrated a relationship between depression and disruptive problems in samples of depressed children. For example, Leon, Kendall, and Garber (1980) found that children in grades 3-6 who were rated by their parents as depressed demonstrated significantly more conduct problems and impulsive hyperactivity than those who were rated as nondepressed. Kazdin, Esveldt-Dawson, Unis, and Rancurello (1983) identified a subgroup of psychiatric inpatient children who had concurrent diagnoses of depression and conduct disorder. Similarly, Puig-Antich (1982) found that one-third of a sample of depressed male children also met criteria for conduct disorder. This association has been explained in terms of the "masked depression" hypothesis (Cytryn & McKnew, 1972), in which antisocial behavior and aggression are thought to represent manifestations of depression in children and adolescents; some researchers even go so far as to suggest that aggressive behavior can be considered as a symptom of depression (Ney, Colbert, Newman, & Young, 1986). Others, such as Burks and Harrison (1960), propose that aggressive behavior is a means for avoiding depression or depressive states. While such positions about the mechanisms by which depression and antisocial behavior operate have not always been supported (e.g., Kovacs & Beck, 1977), the co-occurrence of depression and acting out behavior is a substantiated phenomenon.

The prevalence of depression in juvenile delinquent populations specifically has been examined in several studies. In a sample of 332 male juveniles (ages 11-18) who were committed to the New York State Division of Youth and described as "illegally to have mental problems," Ingalls (1978) concluded that at least 10% of the total delinquent population was experiencing a moderate level of depression. Subsequent reviews of this study have suggested that this estimate may be low, due to methodological weaknesses in the assessment process (Puig-Antich, 1982). Supporting this suggestion is a study by Chiles, Miller, and Cox (1979), who found a 23% rate of major depression in their sample of juvenile delinquents. Their study was based upon 120 youths (ages 13-15) who were serving sentences in a Washington State correctional facility. Presence or absence of depression was assessed using the Major Depressive Disorder criteria of the RDC,

while severity of depression was measured using the Beck Depression Inventory. Although these data are useful as prevalence estimates of depression in juvenile delinquents, it should be mentioned that potential subjects were excluded from the study if they were psychotic, physically ill, mentally retarded, or experiencing a seizure disorder, and thus the sample may not be entirely representative of the total juvenile delinquent population. In addition, the sample was not differentiated according to gender; because prevalence rates of delinquency (Henggeler, 1989) and of depression (American Psychiatric Association, 1987) vary between males and females, it would be important to make a gender distinction when reporting prevalence results.

Another set of studies that examined depression among incarcerated juvenile delinquents was conducted by a group of researchers in Michigan (Alessi, McMannus, Grapentine, & Brickman, 1984; McMannus, Brickman, Alessi, & Grapentine, 1984). Seventy-one (40 male, 31 female) juvenile offenders (ages 14–18) identified as serious or recidivistic offenders served as subjects in this study. That is, participants met one of the following criteria: (a) commission of a violent felony (e.g., homicide, felonious assault, armed robbery, criminal sexual offenses, arson or kidnapping); (b) commission of multiple nonviolent crimes; (c) multiple placement in the Michigan training school system; or (d) assaultive behavior while incarcerated which required that the victim receive medical attention. Using DSM-III criteria, the researchers found that 15% (10% male, 22% female) of the subjects were experiencing an active major depressive disorder, 8% (7.5% male, 8.1% female) were experiencing a major depressive disorder in remission, and 15% (15% male, 17% female) had a dysthymic disorder (McMannus, Alessi, Grapentine, & Brickman, 1984).

Alessi et al. (1984) subsequently compared their results with those of a demographically similar psychiatric inpatient population and found that certain subtypes of depression (e.g., secondary, endogenous, and agitated) were more prevalent in the delinquents. This lends some support to the view that depression co-occurs with other diagnoses in delinquents, and that the characteristics of depression in delinquents may be qualitatively different from depression in other adolescent populations. It must be mentioned, of course, that the sample in these studies purposefully was not representative of the total delinquent population and thus cannot be generalized as such; however, the results are particularly relevant to identifying rates of depression in juvenile delinquents who are repeatedly problematic in the justice system. A further strength of the studies is that differentiation was made between males and females when reporting prevalence rates, which already has been cited as an important procedure.

Related to the area of depression in juvenile delinquents is the prevalence of suicidal behavior in the population. The connection between

antisocial behavior and suicide, in general, has been demonstrated in a postmortem examination of functioning in adolescents who committed suicide (Shaffer 1974), which found that 75% of these juveniles had exhibited antisocial behaviors prior to their deaths. Among incarcerated adolescents, Alessi et al. (1984), in a sample described above, found that 68% of the delinquents studied had exhibited suicidal tendencies (i.e., ideation, intent, and/or attempts) within the year prior to the study. Not surprisingly, the rates of suicidal behavior were highest among delinquents diagnosed with major affective disorders. A similar finding recently was reported by Kempton and Forehand (1992). These investigators found that, in a sample of incarcerated delinquents, a measure of depression was the best predictor of suicide attempts, particularly among white youths.

With regard to suicidal behavior in a juvenile detention facility, Power and Spencer (1987) reported that the types of parasuicidal behaviors most often exhibited were verbal threats of suicide or minor wrist lacerations, with cell arson, swallowing objects, or attempted hanging occurring at lower rates. In a study that compared suicide completion rates for juveniles incarcerated in adult jails, those in juvenile detention centers, and those in the general population, Flaherty (1980) found that the national incidence of suicide rates in adult jails was 7.7 times higher than that in juvenile detention centers; although Flaherty concluded that this discrepancy was due to a lack of supervision in adult jails, other possible explanations include the possibility that greater rates of major affective disorders exist among adolescents incarcerated in adult jails, or that the severity of the crimes committed by these juveniles (juveniles tried and sentenced as adults are more likely to have committed violent felonious crimes) is predictive of more suicidal behavior. Interestingly, Flaherty also found that the rate of suicides in juvenile detention centers appears to be lower than that in the general population, which provides some support for the view that quantity of supervision in these facilities is fairly high. However, when corrected for length of stay, these rates are actually much higher than those found in nonincarcerated youths.

In summary, the rates of major affective disorders among incarcerated juvenile delinquents have been found to range from 10% to 30%, with evidence that the higher rates are more representative of this group of juveniles. This is considerably greater than prevalence rates for depression in the general population, which has been estimated at 5.4% in children (Lefkowitz & Tesiny, 1985); valid prevalence rates of depression in adolescence are limited (Larson, Raffaelli, Richards, Ham, & Jewell, 1990), although most researchers agree that the rates are higher than for preadolescent children. Therefore, there is evidence that delinquent samples manifest more depressive disorders than the general population. This information supports the view that delinquents are at risk for affective

disorders, or, alternatively, that those with affective disorders are at risk for exhibiting delinquent behaviors; regardless of the view taken, it is clear that detection of, and intervention for, major affective disorders are warranted in juvenile delinquent populations.

Disruptive Behavior Disorders

It is almost a given that juvenile offenders will be characterized as having conduct disorder, as the symptom criteria of the disorder overlap with criminal offenses. For example, stealing and fighting are conduct disorder symptoms, and theft and assault are typical juvenile offenses. In addition, theories such as those of Loeber (1990), Patterson et al. (1989), and Thornberry (1987) postulate that delinquent behavior develops on a hierarchical trajectory, and that criminal offenses are simply conduct problems of a higher order than more minor ones, such as lying, repeated truancy, or repeated running away.

Support of the view that conduct disorder is extremely common in juvenile delinquent populations can be found in the results of the McManus, Alessi, Grapentine, and Brickman (1984) study described above; in their sample, all 40 of the male juveniles and 28 of 31 female juveniles met DSM-III criteria for conduct disorder. This resulted in a rate of 90% for the total sample; a further breakdown of subtypes along aggression and socialization dimensions indicated that 69% of the sample could be classified with aggressive conduct disorders, and 44% could be characterized with undersocialized conduct disorder. It is interesting, however, that only eight subjects in their total sample (6 males, 2 females) were assigned conduct disorder as a *primary* diagnosis; most subjects instead were diagnosed with other psychiatric disturbances. This suggests again that mental health problems other than those that are usually considered characteristic of delinquents (i.e., conduct disorder) co-occur in this population. This may particularly be true among serious, repeat offenders such as in the McManus, Alessi, Grapentine, and Brickman (1984) study. Another potential explanation for their data is that there are certain severe conduct disorder symptoms (e.g., fire-setting, cruelty to animals) that serve to differentiate those juveniles with *primary* diagnoses of conduct disorder from those delinquents who qualify secondarily for conduct disorder merely because of their offenses. These severe symptoms emerge later in a sequence of antisocial behaviors and may be markers for "pure" antisocial behavior (Kolko, Kazdin, & Meyer, 1985).

Attention deficit problems and hyperactivity disorders (ADD, ADHD) comprise another disruptive behavior disorder that has been assumed to occur frequently in juvenile delinquents. There exists substantial support for the relationship between ADHD and juvenile delinquency (see

Loeber, 1990, for a review); in particular, it appears that childhood hyperactivity problems are predictive of later criminal behavior. For example, Cantwell (1972, 1975) demonstrated that samples of delinquent adolescents were previously hyperactive children. Similarly, Mendelson, Johnson, and Stewart (1971) examined 83 adolescents, aged 12-16, (75 males, 8 females) who had been diagnosed with hyperactivity disorder two to five years previously; these investigators found that, since the original assessment, 59% of the sample had some contact with the police, 23% had been taken to the police station one or more times, 18% had been before the juvenile court, and 17% had been involved with the police three or more times.

There do exist some data which contradict the finding that ADHD and delinquent behavior are associated. In the McManus, Alessi, Grapentine, and Brickman (1984a) sample of delinquents, no DSM-III diagnoses of ADD were assigned. Although they did not provide specific explanations for this phenomenon, these authors concluded that their data base and assessment instrumentation were limited, thus accounting for the failure to support prior studies. However, data from Wallander (1988) suggest that the attention deficit disorder/delinquency relationship may be a spurious finding, in that they are both related to third variables, including IQ of the child and paternal alcohol intake. Given the unclear pattern of findings in the literature, more research should be conducted in order to determine actual prevalence rates of ADD in the juvenile delinquent population; in addition, as Wallander (1988) concludes, it is important to consider factoring out potential confounding variables before concluding that ADHD is a strong predictor of later delinquency.

In concluding, it is important to note that a critical factor in determining juvenile delinquency may not be ADHD alone but rather the combination of conduct disorder and ADHD. Forehand, Wierson, Frame, Kempton, and Armistead (1992) reported that incarcerated juvenile delinquents with a codiagnosis of CD and ADHD were arrested at an earlier age and had more total arrests than those with a diagnosis of CD only. In a similar vein, Moffitt (1990) found that boys with both ADD and self-reported delinquency had an earlier onset of antisocial behavior than those with only self-reported delinquency. The author predicted that in the future the ADD plus delinquency group would continue to persist in criminal offending. There is some evidence from other researchers that would support such a prediction. Farrington, Loeber, and Van Kammen (in press) found that CD plus ADD was associated with a higher conviction rate (45.8%) than CD alone (35.0%) while Lambert (1988) found that children with ADD plus aggression, but not those with ADD only, were more likely to be court adjudicated as adolescents. Thus, future research needs to attend to the co-occurrence of the two disruptive behaviors.

Anxiety Disorders

To our knowledge, there exists no study that reports the prevalence of anxiety disorders among juvenile delinquent populations. However, Walker et al. (1991) did find in a sample of clinic-referred children, ages 7-12, that 23% had codiagnoses of conduct disorder and anxiety disorder. As was noted previously, a diagnosis of conduct disorder is common among juvenile delinquents; therefore, similar co-occurrence of anxiety and antisocial behavior may exist in juvenile delinquents. One interesting finding by Walker et al. was that the children with the codiagnoses had significantly fewer police contacts than those who had a diagnosis of only conduct disorder. Thus, anxiety may play an important inhibiting role in delinquency.

In adult populations it has usually been assumed that criminals (specifically, psychopaths) exhibit low levels of anxious behavior. However, as noted by Hare (1970), empirical studies have not always produced results consistent with this view. According to Schalling (1978), these contradictory results arise from the lack of consistency in measuring anxiety traits. Instead, she proposes a multidimensional model of anxiety (Schalling, 1970, 1978; Schalling, Cronholm, & Asberg, 1975) with three dimensions: (a) psychic anxiety (worry, apprehension); (b) somatic anxiety (autonomic symptoms, vague distress, and distractibility); and (c) muscular tension (subjective aspects of muscle tenseness). Schalling (1978) concluded, based on validation studies of this model with adult psychopaths, that criminals are consistently *lower* in psychic anxiety, but consistently *higher* in somatic anxiety and muscular tension. Schalling goes on to hypothesize, however, that the stressors associated with incarceration may increase reports of worry and psychic anxiety.

It is not clear whether Schalling's findings with adults could be generalized to a population of juvenile offenders, although the research lends support to the importance of examining anxiety in such a population. This is particularly true if the experience of incarceration itself may increase the rate of anxiety disorders. Certainly a thorough epidemiological study of anxiety behaviors, as well as a delineation of the prevalence of anxiety disorder subtypes (e.g., phobias) in the delinquent population, is missing in the literature at this time.

Personality Disorders

The examination of personality disorders in juvenile delinquency is limited as well, as few research findings are available in the area. Ganzer and Sarason (1973) demonstrated that diagnoses of passive-aggressive disorder were more common in a group of male recidivists than in nonrecidivists.

However, these findings are weakened by the researchers' reliance upon global diagnoses obtained from the subjects' file histories, rather than on specific standard assessment measures utilized in a controlled manner. When the DSM-III criteria for personality disorders were utilized in both McManus et al. studies (1984), borderline personality disorder (BPD) was the most frequent primary psychiatric diagnosis. Fifty-one percent of the females and 40% of the males sampled received either a primary or secondary diagnosis of BPD. In addition, 10% of the male sample received a secondary diagnosis of "other" personality disorder (e.g., hysterical, dependent, atypical); in the female sample, 20% received a primary diagnosis and an additional 20% received a secondary diagnosis of "other" personality disorders.

Evidence for the prevalence of antisocial, sociopathic, or psychopathic personality disorders (used interchangeably in the literature) has been presented by Ganzer and Sarason (1973), who demonstrated that a diagnosis of sociopathy characterized most male recidivists in their sample, versus few of the non-recidivists. While the reliability of their method of assessment can be challenged, similar results have been presented in the McManus et al. studies (1984). Although it was obviously necessary to waive the age 18 DSM-III diagnostic criterion with their adolescent delinquent sample, 38% met the remaining criteria for antisocial personality disorder. Because sociopathic personality disorder has been demonstrated to be predictive of more serious offenses and less amenable to treatment in adult criminals, this rate, found within a subgroup of more problematic juvenile offenders, is particularly ominous with regard to intervention.

Taken together, these data suggest a high prevalence of personality disorders among juvenile delinquents. It must be noted, however, that personality theorists often argue that adolescent populations *in general* tend to exhibit personality disorder symptomatology due to the nature of the developmental period (Millon, 1981); therefore, these rates may be overestimates of those delinquents who would continue to be diagnosable as personality disordered into adulthood.

PSYCHOTIC DISORDERS

The prevalence of psychotic disturbance and schizophrenic spectrum disorders among juvenile delinquents is not clear. The McManus, Alessi, Grapentine, and Brickman (1984) sample contained three (all male) diagnosed schizophrenics and five youths (4 male, 1 female) with schizotypal personality disorder. In addition, 30% of the sample was defined as having at least one schizotypal feature, although this rate is not necessarily indicative of schizophrenic-like symptomatology. Specific psychotic symptoms per se (e.g., auditory and visual hallucinations, delusions) were

not examined; because the age of first onset of schizophrenic symptoms is usually adolescence or early adulthood (American Psychiatric Association, 1987), it seems logical that future studies of psychotic disorders in delinquents should examine specific symptoms, as full blown schizophrenia and other psychoses may only be beginning to develop in this population. The findings of the McMannus, Alessi, Grapentine, and Brickman (1984) study suggest that approximately 1% of severe delinquents may be schizophrenic, a result not much different from the rate in the general population, which ranges from 0.2% to 1% (American Psychiatric Association, 1987).

Mental Retardation

Early studies linked deficits in intellectual functioning to criminal behavior; for example, Woodward (1955) demonstrated that convicted offenders had significantly lower IQ scores than comparable nonoffender samples. In a recent review, Quay (1987) reported that IQ differences average about one-half a standard deviation across studies comparing delinquent and nondelinquent samples. However, other studies have found only small differences between incarcerated criminals and nonoffenders (e.g., Prentice & Kelly, 1963). According to Feldman (1977), many researchers hold the view that any differences are indications of nothing more than cognitive functioning leading to impairment in criminal activity, just as it does in any other area of performance. In addition, offenders with lower intellectual capacity may be less likely to be successful at avoiding detection and conviction. However, the association between IQ and delinquency appears to remain intact even when these factors are considered (West & Farrington, 1977), and when social class and race have been factored out in data analyses (Moffitt, Gabrielli, Mednick, & Shulsinger, 1981).

Perhaps the best evidence, however, for an association between intelligence and delinquency is represented in a large scale prospective study conducted by White, Moffitt, and Silva (1989). They followed a sample of 1037 children, originally assessed at age 5, at ages 13 and 15 to obtain measures of delinquent behaviors. Their findings demonstrated that both males and females who were delinquents at Time 2 showed significantly lower Time 1 IQ scores than nondelinquent groups. Even more interesting is an additional finding that a high IQ (above average) at Time 1 was predictive of nondelinquency among males, even those at high risk for exhibiting such behaviors (i.e., those whose antisocial behaviors at age 5, as rated by teachers, were in the upper third of the distribution). These recent data, then, do support the hypothesis that delinquents may, in fact, have lower intelligence than nondelinquents. In addition, there is some evidence to suggest that specific categories of criminal behavior are correlated with

lower intelligence. In particular, perpetrators of sexual offenses have been found to be six times as likely as other offenders to be classified as mentally retarded (Walker, 1965). Again, this could be due to a lack of knowledge regarding how to interact heterosocially, a phenomenon that has been proposed to characterize juvenile sexual offenders (Henggeler, 1989).

It is clear from the above summary that some support exists for higher rates of intellectual impairment among juvenile delinquents when compared to nondelinquents. Specific areas that warrant further epidemiological research, however, are the prevalence rates of mental retardation and borderline cognitive functioning per se in the juvenile delinquent population, as well as identification of specific offense categories more likely to be related to impaired intelligence.

Substance Abuse

It is not surprising that alcohol and substance abuse have been implicated in juvenile delinquent populations, as these drugs tend to decrease inhibitory behavior; in addition, drug addiction itself has been posited as a motivation for crime (Farrow & French, 1986; Kraus, 1981; McCord, 1981). Certainly, substance abuse and delinquency have been found to coexist in several samples (e.g., Kammen, Loeber, & Stouthamer-Loeber, 1991; Kraus, 1981; Kashani & Simonds, 1979; Tinklenberg, Murphy, Murphy, & Pfefferbaum, 1981). However, most researchers appear to hold the position that "where juvenile delinquency and drug abuse coexist, the former precedes the latter, and . . . both result from a [common] denominator" (Farrow & French, 1986, p. 951). This view is supported by Windle (1990), who longitudinally examined a large subsample (1254 male, 1157 females) of a national probability sample collected in 1979 with an overrepresentation of blacks, hispanics, and whites with low socioeconomic status. Subjects were youths who were assessed for antisocial behavior at ages 14-15 and then reassessed 4 years later. Results of this study showed that delinquency at time one was a strong significant predictor of both substance abuse and delinquency at the follow-up date. These results corroborate those of Dawkins and Dawkins (1983), who found that alcohol use among 342 white, black, and adolescent offenders was associated with minor juvenile offenses, particularly for black offenders.

Prevalence rates of substance use among juvenile delinquents have been reported for several samples of incarcerated adolescent offenders. Segal, Hoboll, and Cromer (1984) reported that, among males (ages 12-18) detained in an Alaskan residential youth facility, 100% reported engaging in some alcohol consumption prior to their detention. With regard to alcohol and other drug use, Farrow and French (1986) demonstrated that 81% of a sample of 91 incarcerated delinquents admitted to some substance

use during the six months prior to their incarceration. Specifically, rates of those who used substances on a daily basis were as follows: tobacco, 76%; cocaine, 8%; hallucinogens (LSD, PCP), 4.4%; amphetamines, 19%; marijuana, 50%; barbiturates, 12%; and alcohol, 28%. Although labeled substance "use," these rates would appear to be comparable to *abuse rates* for these drugs, as they were defined as frequency of daily use.

Two studies have utilized specific diagnostic criteria to generate diagnoses of substance abuse and addiction. Based on standardized interviews, Neighbors, Kempton, and Forehand (1992) reported that 47% of their sample of 111 incarcerated youth met criteria for a diagnosis of alcohol or substance abuse or dependence. Of this 47%, 44% were diagnosed as having alcohol abuse or dependence alone or in conjunction with marijuana abuse or dependence while the remaining 56% met criteria for an advanced stage of substance abuse (e.g., amphetamines, cocaine). In the second study McManus, Alessi, Grapentine, and Brickman (1984a) found that, of the 71 juveniles examined, 45 (25 males, 20 females) met the DSM-III criteria for substance abuse, or 65% of the total sample. Furthermore, 31% of the males and 45% of the females were considered polydrug abusers. The rates of specific DSM-III substance abuse diagnoses were as follows: alcohol abuse, 20%; alcohol dependence, 8%; narcotics abuse, 5.6%; amphetamine abuse, 17%; cocaine abuse, 8%; barbiturate, sedative abuse, 11%; cannabis abuse, 44%, and hallucinogen abuse, 21%. Alcohol and substance dependence were not reported. Neither the Neighbors et al. nor McManus, Alessi, Grapentine, and Brickman samples were intended to be representative of incarcerated delinquents in general and, therefore, the reported rates cannot be assumed to represent rates of abuse and dependence in the juvenile delinquent population. However, as these rates are not radically different from those of daily users in the study of unselected incarcerated delinquents by Farrow and French (1986), it is possible that they are generalizable to the group of incarcerated juveniles.

The Neighbors et al. (1992) study also provides some data on the co-occurrence of substance abuse and other psychiatric disorders. These investigators found that the diagnosis of abuse of or dependence on alcohol or drugs was associated with a diagnosis of conduct disorder in over 90% of the sample; however, a co-diagnosis of depression and anxiety occurred in only about 38% and 30% of the sample, respectively. With polysubstance substance abuse, the probability of having *more than one* of the other three psychiatric diagnoses was above 50%. Thus, substance abuse in incarcerated delinquents is strongly associated with conduct disorder and these youth are even likely to meet criteria for an additional diagnosis. The presence of multiple disorders is not unlike that which has been reported with adults who have been arrested (Abram & Tepin, 1991).

Summary

In summary, there is preliminary evidence to suggest that the rates of various mental health disorders (e.g., depression, attention deficit disorder, personality disorders, mental retardation, and substance abuse) are high among incarcerated juvenile delinquents. However, there exists a paucity of sound epidemiological studies of the co-occurrence of juvenile delinquency and single or multiple specific mental health disorders, particularly for such diagnostic categories as anxiety disorders. In addition, some studies that do report prevalence rates suffer from methodological weaknesses, such as failure to differentiate rates by gender (e.g., Chiles et al., 1979) or use of nonstandard assessment methods (e.g., Ingalls, 1978). Some studies reporting otherwise sound prevalence data are based upon atypical samples, skewed toward inclusion of those with severe antisocial behavior or toward the omission of those with obvious psychopathology or mental impairment, and are therefore not representative of the general delinquent population. Clearly, then, more research is needed in order to have a better understanding of the prevalence of mental health disturbances in incarcerated juvenile delinquents. The exact nature and extent of the mental health needs of these youths is undetermined.

TREATMENT

In this section, studies of the treatment of mental health problems in juvenile delinquents will be discussed, organized by type of mental health problem. Not unexpectedly, the bulk of the research literature reporting on the treatment of psychiatric disorders in juvenile delinquents deals with conduct problem behaviors. In fact, the number of studies about interventions for other types of mental health problems in this population is quite scant. Therefore, the treatment methods that have been most efficacious with nondelinquent children and adolescents displaying various mental health problems will also be briefly summarized. In the final section, the authors will then draw inferences about the (as yet, unresearched) intervention strategies that would seem to be indicated for emotionally disturbed delinquents.

Conduct Disorder

As many theories and conceptual models have been proposed to explain the development and maintenance of antisocial behaviors, many treatment approaches have been utilized with juvenile delinquents in attempts to reduce those behaviors (see Henggeler, 1989 for a review). Some of the types of interventions have included psychodynamic psychotherapy

with the individual youth, in which the juvenile delinquent is guided toward developing insight into the causes of his behavior (e.g., Teuber & Powers, 1955); behavior therapy (contingency management), in which the youth is rewarded for appropriate/desirable behaviors, while inappropriate/undesirable behaviors are consecuted with aversive events, such as loss of privileges (e.g., Karacki & Levinson, 1970); social learning, in which the youth is taught to respond to problem situations by watching and imitating a skilled person modeling such behaviors (e.g., Sarason & Ganzer, 1973); cognitive behavior therapy, in which the youth is taught to identify and evaluate potentially problematic situations and a range of possible responses before acting on impulse (e.g., Guerra & Slaby, 1990; Kazdin, Bass, Siegel, & Thomas, 1989); guided group intervention, in which confrontive group therapy is used to reward socially appropriate behavior and to understand personal problems (e.g., Weeks, 1962); academic and vocational skills training (e.g., Cohen & Filipczak, 1971; Shore & Massimo, 1979); recreational programs with the goal of developing a sense of worth and responsibility, where the youth is taught an activity such as wilderness survival, or playing a sport (e.g., O'Donnell, Chambers, & Ling, 1973); cognitive behavioral family therapy, in which clear communication, problem solving, and negotiation skills are taught (e.g., Alexander & Parsons, 1973); parent training, in which parents are taught effective attention and disciplinary skills (e.g., Patterson, Chamberlain, & Reid, 1982); and programs utilizing a combination of these treatment methods in a residential (e.g., Phillips, 1968) or outpatient (e.g., Henggeler et al., 1986) setting.

Garrett (1985) provided a review and meta-analysis of the effectiveness of the various treatment methods with institutionalized juvenile delinquents from 1960 through 1983. She pointed out that the evaluation of the effectiveness of these treatments varied, depending on the outcome measure used to define success. Typically, when behavior within the institutional setting was considered at posttreatment, the interventions appeared to be successful in reducing antisocial behaviors. However, at follow-up, when self-reports of illegal acts or actual recidivism rates were examined, improvement was attenuated for the treated youths. The lack of effectiveness at follow-up is evident in numerous studies, regardless of whether the youths are pre-delinquent, delinquent, or incarcerated for delinquency. For example, in a recent study by Weisz, Walter, Weiss, Fernandez, and Mikow (1990), intense treatment of seriously emotionally disturbed youths who were violent or assaultive did not reduce the risk of arrests after termination of the program.

Returning to the Garrett meta-analysis, when only methodologically rigorous studies were considered, she found that, across treatment methods and outcome types, treated subjects improved an average of .25 standard

deviations above the mean of the control group. The improvement rates, above the control mean, for individual, group, and family therapies were .14, .17, and .81 standard deviations, respectively. Across all studies, the various theoretical orientations resulted in improvements over the control mean by .17, .86, .56, .24, and .31 standard deviations, respectively, for psychodynamic, contingency management, cognitive behavioral, guided group intervention, and milieu (often behaviorally based earning of privileges for following institutional rules) therapies. Using recidivism as the outcome, across all studies, the rates dropped to 0, .25, .24, and 0, for psychodynamic, contingency management, cognitive behavioral, and guided group interventions, respectively, but rose to .79 for milieu therapy. Garrett concluded that, although the effect sizes are not always large, there is consistent evidence to suggest that intervention is somewhat helpful in reducing rates of delinquent and antisocial behaviors. She also pointed out that family therapy, contingency management, and cognitive behavior therapy seem to be most beneficial to juvenile delinquents in institutional settings.

Quay (1986) has written a thoughtful review of five large broad-based, multi-faceted institutional treatment programs for juvenile delinquents that were implemented in the 1970s. These programs typically involved the random assignment of delinquents to either an experimental residential program involving increased interaction with specially trained caretakers or to an attention control group or the standard juvenile justice program. In some programs, an emphasis was also placed on the acquisition of academic or vocational skills. Such projects included the Preston Typology Study (Jesness, 1971), the California Community Treatment Project (Palmer, 1974), the Close-Holton Study (Jesness, 1975), the Robert F. Kennedy Youth Center Study (Cavior & Schmidt, 1978; Gerard, 1970), and Achievement Place (Phillips, Phillips, Fixsen, & Wolf, 1973). Quay concluded that treatment efficacy was sometimes demonstrated within a treatment study, but, in every case, the results failed to generalize when the youths were released to their home environments.

Recent treatment approaches with conduct disordered children and adolescents have been characterized by two primary aspects: first, they have attempted to target behavioral excesses or deficits that appear to be causally related to antisocial behavior; and, second, they have been designed within a behavioral or cognitive-behavioral framework. [See Henggeler (1989) and Kazdin (1987) for a review of much of this work.] The target symptoms of these studies have included lack of moral reasoning or perspective taking (e.g., Arbutnot & Gordon, 1986; Chalmers & Townsend, 1990) as well as social skills, social problem-solving skills, and impulse and anger control, alone and in various combinations (e.g., Borduin et al., 1992; Goldstein & Glick, 1987; Guerra & Slaby, 1990; Henggeler et

al., 1986; Kazdin et al., 1989; Lochman, Burch, Curry, & Lampron, 1984). Some researchers have also emphasized parental involvement in the youths' treatment (e.g., Borduin et al., 1992; Henggeler et al., 1986). Most of the recent investigations demonstrated significant posttreatment gains in the target behavior(s) of the treated subjects relative to controls, and some gains were maintained from over a three-month period (i.e., Goldstein & Glick, 1987) to a year (i.e., Kazdin et al., 1989).

However, several problems exist when the implications of these studies are considered for intervention with juvenile delinquents. First, many of the children and adolescents participating in the treatment studies were described as aggressive and/or conduct disordered, but not necessarily as juvenile delinquents. The Kazdin et al. (1989) subjects, for example, were children hospitalized on a psychiatric unit for conduct problems. Although most had engaged in serious illegal behavior, they were not technically juvenile delinquents. The Lochman et al. (1984) and the Arbuthnot and Gordon (1986) subjects were public school students who were teacher-referred for aggressive behavior. Thus, whether results of these studies could be generalized to the population of juvenile delinquents is unclear.

Second, although the interventions were generally successful in changing specific target behaviors at least temporarily, their impact on the broader category of antisocial/delinquent behavior was not always demonstrated. Sometimes this was because the investigators failed to collect relevant outcome measures, such as self-reports of antisocial acts or official records of contacts with legal authorities (e.g., Chalmers & Townsend, 1990). In other instances, the treatment simply appeared to have no impact on recidivism (e.g., Guerra & Slaby, 1990). In most cases, however, evaluation of the treatment's effect on antisocial behavior was limited by the length of the follow-up period. For many studies, even a one-year follow-up may not be sufficient to determine the delinquency outcome of many treated children and adolescents, as research indicates that delinquent behavior does not peak until 16–18 years of age (Henggeler, 1989). Finally, some interventions may fail to show a change in the overall level of youths' antisocial behavior, due to the number and nature of untreated problems. As Loeber (1990) has noted, it may be unrealistic to expect treatment of one problem area to generalize across all types of conduct problems. He points out that most treatment programs for conduct disorder concentrate on the reduction of aggression, while neglecting more covert problem behaviors, such as lying and stealing, that are also frequent sources of police contact.

Finally, researchers in the area of conduct problems are faced with the question of whether statistically significant gains made by a treated group, either in comparison to their own baseline or to that of a control group,

are large enough to be of clinical importance. For example, although Kazdin et al. (1989) demonstrated statistically significant improvement in the conduct problem behaviors of their subjects after treatment, that reduced level of antisocial behavior was still significantly higher than that of a normal control group.

In summary, treatment for the symptoms of conduct disorder, including behaviors such as aggression and stealing, have been moderately successful. Behavioral and family treatments appear to be associated with the greatest levels of change. However, although it is possible to demonstrate temporary improvement in problem behaviors immediately after treatment within the treatment setting, it must be noted that the improved level of behavior of these youths may still be problematic in comparison to control youths, and that the treatment gains tend not to be maintained across time or settings.

Affective Disorders

No studies could be located that reported on the treatment of affective disorders in juvenile delinquents. Among nondelinquent children and adolescents, effective treatments for depression have included social skills training, cognitive therapy, self-control and self-reinforcement, and relaxation training (Frame, Cuddy, & Robinson, 1989; Matson & Carey, 1988). Medication sometimes has been indicated for depression; lithium seems to be the treatment of choice for manic depressive disorder (Carlson, 1988).

Attention Deficit Hyperactivity Disorder

No reports of the treatment of attention deficit hyperactivity disorder in juvenile delinquent samples were located. However, reports of noninstitutionalized children and adolescents exhibiting this problem clearly demonstrate the efficacy of contingency management, impulse control training, and social problem solving training (Schaughency, Walker, & Lahey, 1988) as well as stimulant medication (Gadow, 1988). Pelham and Murphy (1988) assert that the most effective treatment for attention deficit problems is the combination of behavioral management techniques and central nervous system stimulant medication.

Anxiety Disorders

Just as no epidemiological studies of anxiety problems have been conducted in the population of juvenile delinquents, there also appear to have been no treatment studies. Again turning to the literature on

nondelinquent children and adolescents, which is also scant, the most effective methods seem to include relaxation, graded exposure, flooding, and cognitive therapy; in rare cases, medication may also be indicated (Francis, 1989; Kratochwill, Accardi, & Morris, 1988).

Personality Disorders

Despite the McManus, Brickman, Alessi, and Grapentine (1984) findings of a very high rate of personality disorder diagnoses among juvenile delinquents, there exist no published reports of their treatment. As noted before, however, this is not unexpected; due to the widely held belief that personality disorders are not "fixed" until adulthood (APA, 1987), the literature on the treatment of personality disorders in nondelinquent adolescents is also virtually nonexistent. Recently, Millon, Green, and Meagher (1982) have developed an instrument to assess adolescent personality styles as possible precursors to adult personality disorder. Theoretically, it should be possible to develop treatment strategies for adolescents with particular personality styles that are similar to the interventions that Millon (1981) has proposed for use with adult patients, but there are no published reports, as yet.

Psychotic Disorders

There are no controlled treatment studies of psychotic delinquents, perhaps because when psychosis is recognized, the youth is typically funneled into the mental health system, rather than through the juvenile justice system. Also, full-blown schizophrenia usually does not onset until after the age of 17 (APA, 1987), rendering the rates of psychosis very low in adolescents in general. When psychotic symptoms are noted in the nonoffender population, the treatment of choice is usually antipsychotic medication (Davison & Neale, 1990).

Mental Retardation

Although no published reports of outcome data were available on the treatment of mentally retarded juvenile delinquents, descriptions of several special intervention programs were reported (see Santamur & Watson, 1982). These programs appeared to contain many promising elements, including token economies for daily living skills, social skills and anger control training, self-esteem enhancement, instruction in the productive use of leisure time, problem solving, vocational and community living training, specialized learning environment for academic skills, didactic

programs on sexual behavior and substance abuse, family involvement, and the availability of psychiatric medication, as needed.

Substance Abuse

Although substance abuse is a major problem among juvenile delinquents, nondelinquent juveniles and young adults alike, little is known about effective treatment and relapse prevention in any of these populations. Haggerty, Wells, Jenson, Catalano, and Hawkins (1989) describe a promising program developed for use with juvenile delinquents, currently funded as a demonstration prevention/intervention project by the National Institute on Drug Abuse. Called Project ADAPT, the program selects youths who have been committed to a state juvenile detention facility for serious crimes (e.g., theft, burglary, robbery, or sex offenses). These youths have not necessarily yet engaged in substance abuse, but are considered at risk to do so by virtue of their involvement in illegal behavior, association with deviant peers, lack of bonding to conventional norms, poor family relationships, etc. The program aids the youth in returning to the community through the implementation of a two-step program. First, the delinquents participate in a 10-week cognitive behavioral skill training program that teaches skills previously found to be associated with resistance to substance abuse, including social problem solving, self-control, avoidance of trouble, social networking with appropriate others, coping with authority, and relapse coping.

Second, at the same time that they are participating in the skills training, the youths are assigned an individual case manager, who develops a one-on-one relationship with him or her. The case manager meets with the youth once a week or more and helps with any problems the youth may be experiencing, including assignments from the skills training program. Toward the end of the skills training program, the case manager works with the youth to identify the youth's needs in the areas of home/place-ment, school/work, social skills, relationships, prosocial activities, and community services. Based on these needs, two treatment targets are identified as priorities, labelled the "hook" (the greatest motivation for staying out of trouble) and the "trap" (the area most likely to interfere with successful living in the community). For the first month after the youth is released, the case manager spends extensive amounts of time with the youth in his/her community, reinforcing appropriate behaviors, practicing skills, and teaching family, friends, and teachers to acknowledge and reward the youth's appropriate behaviors. During the second month, the case manager begins to fade his contact. Termination with the youth is attempted after a person from the community can be found to function as a natural social support for the youth. Although no follow-up data are yet

available for recidivism or substance abuse, the project appears to contain many elements related to effective, if temporary, change in the problem behaviors of youthful offenders.

Sexual Deviations

Data from several treatment studies with sexual offenders are available (Davis & Leitenberg, 1987), but most are limited by the lack of a control group with whom to compare the delinquents for change. Latond, Stark, and Buckley (1979) utilized 20 hours of group insight-oriented therapy, combined with social skills training and values clarification, with 16 sex offenders. At follow-up, 5% had committed another sexual offense and 11% had been convicted of nonsexual offenses (Knopp, 1982). Borduin, Henggeler, Blasko, and Stein (1990) have reported perhaps the only controlled study in the area. In their study, sixteen adolescent sex offenders were assigned to receive either multisystemic therapy or traditional individual psychotherapy. Multisystemic therapy is a treatment devised by Henggeler and his colleagues that is characterized by a flexible, multifaceted, problem-oriented approach. The therapy involves an assessment of the youth across all situational aspects of his life, and concentrates on remediation of any and all problem areas. Family members and school personnel are frequently involved in the therapy process, and techniques from other approaches (such as cognitive behavior therapy) are frequently utilized. Results were quite favorable for the multisystemic therapy group. At a three-year follow-up, 12.5% of the multisystemic group ($n = 1$), vs. 75% of the individual psychotherapy group ($n = 6$), had been rearrested for sexual offenses. Interestingly, the low recidivism rate for the multisystemic group appeared to be obtained without the aid of sexual reconditioning, a component generally thought to be crucial to success with adult sex offenders (Marshall & Barbaree, 1988).

Mixed Psychiatric Diagnoses

One other study was notable for its attention to the treatment of emotionally disturbed juvenile delinquents. Hartstone and Coccozza (1984) reported on the Bronx Court Related Unit (CRU) that provided intensive treatment in several modalities for juvenile delinquents who were also severely emotionally disturbed. Psychiatric and psychological interventions were designed to fit the needs of each individual, and included medication, individual psychotherapy, family counseling, and/or educational and recreational activities, in addition to the standard behavioral milieu treatment on the unit. The youths who participated in this special treatment unit were followed after leaving the unit for an unspecified

period of time and were compared to those who had some emotional disturbance, but did not qualify as exhibiting mental health problems in need of long-term intervention. Results indicated that many of the CRU adolescents were institutionalized at other psychiatric facilities at follow-up. Of those returning to the community, 69% had recidivated, as compared to 76% of controls; CRU youths had fewer arrests per youth (2.8) than controls (3.3); and fewer of them were rearrested for violent crimes (38.9%) than controls (43.5%). Thus, the CRU appeared to have a modest effect on recidivism rates. Given that these youths were identified at pretreatment as functioning more poorly than controls, these results are particularly encouraging.

Summary

In summary, even less is known about effective treatments for emotional disorders in juvenile delinquents than is known about their rates of occurrence. Most of the treatment research has concentrated on the alleviation of conduct disorder symptoms, in an effort to reduce recidivism. In that area, slow progress is being made. Behaviorally-oriented individual and family therapies have produced some change in delinquent youths, especially immediately after treatment. However, generalization frequently does not occur. With the exception of mental retardation, substance abuse, and sexual deviations, no empirical work has been conducted on the response of juvenile delinquents' mental health problems to psychological/psychiatric intervention. A few program descriptions exist for the treatment of mentally retarded juvenile delinquents, and for the prevention of substance abuse, but there are no outcome data. The one controlled outcome study with adolescent sex offenders suggests that a multisystemic approach may be useful in reducing recidivism.

Of the programs described for conduct disorder, substance abuse prevention, mental retardation, and sexual offending, most incorporate similar therapy components. Although these components appear intuitively to be related to each of the problems in some way, their similarity suggests that other approaches, more specific to the various disorders, could be developed and tested. In addition, component analyses of the effectiveness of the various types of interventions utilized in the successful multifaceted programs might aid in determining those elements that are ineffective or redundant. Little is known in general about treating children and adolescents with psychopathology; the knowledge decreases to near zero when emotionally disturbed juvenile delinquents are concerned. At present, the study of this type of dual handicap — juvenile delinquency with mental disorder — is in its infancy.

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