

DOES CORRECTIONAL TREATMENT WORK? A CLINICALLY RELEVANT AND PSYCHOLOGICALLY INFORMED META-ANALYSIS*

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Careful reading of the literature on the psychology of criminal conduct and of prior reviews of studies of treatment effects suggests that neither criminal sanctioning without provision of rehabilitative service nor servicing without reference to clinical principles of rehabilitation will succeed in reducing recidivism. What works, in our view, is the delivery of appropriate correctional service, and appropriate service reflects three psychological principles: (1) delivery of service to higher risk cases, (2) targeting of criminogenic needs, and (3) use of styles and modes of treatment (e.g., cognitive and behavioral) that are matched with client need and learning styles. These principles were applied to studies of juvenile and adult correctional treatment, which yielded 154 phi coefficients that summarized the magnitude and direction of the impact of treatment on recidivism. The effect of appropriate correctional service (mean phi = .30) was significantly ($p < .05$) greater than that of unspecified correctional service (.13), and both were more effective than inappropriate service (-.06) and non-service criminal sanctioning (-.07). Service was effective within juvenile and adult corrections, in studies published before and after 1980, in randomized and nonrandomized designs, and in diversionary, community, and residential programs (albeit, attenuated in residential settings). Clinical sensitivity and a psychologically informed perspective on crime

* This paper is dedicated to Daniel Glaser, Ted Palmer, and Marguerite Q. Warren.

may assist in the renewed service, research, and conceptual efforts that are strongly indicated by our review.

During the 1970s, the ideological hegemony of the individualized treatment ideal suffered a swift and devastating collapse (Rothman, 1980). Previously a code word for "doing good," rehabilitation came to be seen by liberals as a euphemism for coercing offenders and by conservatives as one for letting hardened criminals off easily. Although the public's belief in rehabilitation was never eroded completely (Cullen et al., 1988), defenders of treatment were branded scientifically and politically naive apologists for the socially powerful, self-serving human service professionals, or curious relics of a positivistic past. Thus, a number of jurisdictions in the United States (Cullen and Gilbert, 1982) and Canada (Andrews, 1990; Leschied et al., 1988) embarked on sentencing reforms that undercut the role of rehabilitation in justice and corrections.

The decline of the rehabilitative ideal cannot be attributed to a careful reading of evidence regarding the effectiveness of rehabilitative treatment. As will be shown, reviews of the effectiveness literature routinely found that a substantial proportion of the better-controlled studies of rehabilitative service reported positive effects, and did so for programs that operated within a variety of conditions established by criminal sanctions, such as probation or incarceration. We will also show that criminal sanctions themselves were typically found to be only minimally related to recidivism. Thus, rather than a rational appreciation of evidence, the attack on rehabilitation was a reflection of broader social and intellectual trends. This is evident upon consideration of the particular historical timing and intensity of the attack on rehabilitation.

First, the rapidly changing sociopolitical context of the decade preceding the mid-1970s propelled conservatives to seek "law and order," while liberals attached to class-based perspectives on crime became discouraged about the benevolence of the state and the promise of direct intervention (Allen, 1981; Cullen and Gendreau, 1989). Second, an emerging social science, informed by labelling and critical/Marxist approaches, embraced antipsychological and often anti-empirical themes (Andrews, 1990; Andrews and Wormith, 1989). These emergent perspectives played an important role in legitimating the decision of many academic criminologists and juridical policymakers to declare rehabilitation fully bankrupt. Most noteworthy was Robert Martinson's (1974:25) conclusion that "the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism." In short order, with the blessing of a major academy of science (Sechrest et al., 1979), the notion that "nothing works" became accepted doctrine (Walker, 1989). "Nothing works" satisfied conservative political reactions to the apparent disorder of the 1960s, liberal sorrow over perceived failures of the Great Society,

and the ideological persuasions of those academicians whose truly social visions of deviance asserted that only radical social change could have an impact on crime.

In the 1980s, however, rehabilitation and respect for evidence made at least a modest comeback. As will be noted, a number of revisionist scholars have observed that the marriage of conservative politics and leftist social science—in both its “discouraged liberal” and “critical/Marxist” versions—has neither improved justice nor increased crime control. In any case, it is our thesis that evidence of effective treatment was there from the earliest reviews, now is mounting, and constitutes a persuasive case against the “nothing works” doctrine.

Even so, criticisms of rehabilitation are not in short supply. As Walker (1989:231) comments: “It is wishful thinking to believe that additional research is going to uncover a magic key that has somehow been overlooked for 150 years.” Other scholars—as exemplified most notably and recently by Whitehead and Lab (1989; Lab and Whitehead, 1988)—continue to participate in the scientific exchange on intervention and to present evidence ostensibly bolstering the “nothing works” message.

Whitehead and Lab's (1989) report is very much in the tradition of the reviews and conclusions that are challenged in this paper. Before detailing our position, however, we note that the Whitehead and Lab review is important for several reasons. First, having searched the psychological, sociological, and criminological journals, they produced an impressively complete set of controlled evaluations of juvenile treatment for the years 1975 to 1984. They coded the setting of treatment and distinguished among diversion programs (within and outside the juvenile justice system), probation and other community-based programs, and residential programming. Moreover, they coded type of treatment within these settings as either behavioral or nonbehavioral and considered recency (year of publication) and quality of research design. Focused exclusively upon evaluations employing recidivism as an outcome variable, their conclusions actually had to do with crime control. Clearly then, the negative conclusion of Whitehead and Lab is worthy of serious consideration by those in criminal justice.

Most serious, and unlike most earlier reviews—including the Martinson (1974) review—portions of the Whitehead and Lab (1989) paper support a very firm version of “nothing works.” That is, the methodological, clinical, and sampling caveats typically listed by earlier reviewers were discounted systematically in Whitehead and Lab (1989). Regarding quality of the research, the more rigorous studies were reported to find correctional treatment to have effects even more negative than did the less rigorous studies. As to standards of effectiveness, Whitehead and Lab advised that their standard (a phi coefficient of .20 or greater) was so generous that evidence favorable to treatment would certainly have emerged had positive evidence, in fact, existed. In

regard to type of treatment, they admitted that behavioral forms of intervention may be effective with outcomes other than recidivism, but they found behavioral treatment to be no more effective than nonbehavioral approaches in the control of recidivism.

Our meta-analysis includes, but is not confined to, the Whitehead and Lab (1989) sample of studies. Challenging sweeping conclusions regarding program ineffectiveness, we reaffirm a line of analysis for developing meaningful conclusions on the conditions under which programs will work. Our challenge is informed by considerations of research and theory on the causes of crime and by research and theory on behavioral influence processes. In particular, a growing number of scholars and practitioners now agree with what was always the starting point of the Gluecks (1950), the Grants (1959), Glaser (1974), and Palmer (1975): The effectiveness of correctional treatment is dependent upon what is delivered to whom in particular settings. Certainly that has been our view¹ and the view of many other reviewers and commentators.²

CLINICALLY RELEVANT AND PSYCHOLOGICALLY INFORMED PROGRAMMING, EVALUATION, AND META-ANALYSIS

The psychology of criminal conduct recognizes multiple sources of variation in criminal recidivism (Andrews, 1980, 1983; Andrews and Kiessling, 1980; Andrews et al., 1990; Cullen and Gendreau, 1989; Hoge and Andrews, 1986; Palmer, 1983; Warren, 1969). These major sources of variation are found through analyses of the main and interactive effects of (a) preservice characteristics of offenders, (b) characteristics of correctional workers, (c) specifics of the content and process of services planned and delivered, and (d) intermediate changes in the person and circumstances of individual offenders. Logically, these major sources of variation in outcome reside within the conditions established by the specifics of a judicial disposition or criminal sanction. Thus, there is little reason to expect that variation among settings or sanctions will have an impact on recidivism except in interaction with offender characteristics and through the mediators of intervention process and intermediate change. We develop this "criminal sanction" hypothesis first and then compare it with hypotheses regarding the effectiveness of a correctional service approach that attends to preservice case characteristics, to

1. Andrews (1980, 1983, 1990), Andrews and Kiessling (1980), Andrews et al. (1990), Cullen and Gendreau (1989), Gendreau and Ross (1979, 1981, 1987).

2. Basta and Davidson (1988), Currie (1989), Garrett (1985), Geismar and Wood (1985), Greenwood and Zimring (1985), Izzo and Ross (1990), Lipsey (1989), Martinson (1979), Mayer et al. (1986), Palmer (1983), Ross and Fabiano (1985).

the process and content of intervention, and to intermediate change within particular sanctions.

IN THEORY, WHY SHOULD CRIMINAL SANCTIONING WORK?

A focus upon variation in official disposition is a reflection of one or more of the three sets of theoretical perspectives known as *just deserts*, *labelling*, and *deterrence*. The just deserts or justice set is not overly concerned with recidivism, but on occasion the assumption surfaces that unjust processing may motivate additional criminal activity (Schur, 1973:129). It appears, however, that the devaluation of rehabilitation—in the interest of increasing “just” processing—has been associated with increased punishment and decreased treatment but not with reduced recidivism (Cullen and Gilbert, 1982; Leschied et al., 1988).

The labelling and deterrence perspectives actually yield conflicting predictions regarding the outcomes of different dispositions (Rausch, 1983). Labelling theory suggests that less involvement in the criminal justice system is better than more (because the stigma is less), while deterrence theory suggests the opposite (because fear of punishment is greater). The assumptions of both labelling (Andrews and Wormith, 1989; Wellford, 1975) and deterrence (Gendreau and Ross, 1981) have been subjected to logical and empirical review, and neither perspective is yet able to offer a well-developed psychology of criminal conduct. Basic differentiations among and within levels and types of sanctions have yet to be worked out (Smith and Gartin, 1989), type of offender is likely a crucial moderating variable (Klein, 1986), and the social psychology of “processing” is only now being explored (Link et al., 1989).

IN FACT, DOES CRIMINAL SANCTIONING WORK?

To our knowledge, not a single review of the effects of judicial sanctioning on criminal recidivism has reached positive conclusions except when the extremes of incapacitation are tested or when additional reference is made to moderators (e.g., type of offender) or mediators (e.g., the specifics of intervention). Reading Kirby (1954), Bailey (1966), Logan (1972), and Martinson (1974) reveals the obvious but unstated fact that their negative conclusions regarding “treatment” reflected primarily the negligible impact of variation in sanctions such as probation and incarceration. Thus, we agree with Palmer (1975): The main effects of criminal sanctions on recidivism have been slight and inconsistent.

This hypothesis is extended to judicial “alternatives,” because there are no solid reasons for expecting alternative punishments, such as community service or restitution, to have an impact on recidivism. Any anticipated rehabilitative benefit of “alternatives” is based on the hope that offenders will learn that crime has negative consequences, and yet the enhancement of cognitive

and interpersonal skills (e.g., future-orientation and perspective-taking) are dependent upon systematic modeling, reinforcement, and graduated practice (Ross and Fabiano, 1985). Given little reason to expect much from the incidental learning opportunities provided by such sanctions as restitution, correctional treatment service is a crucial supplement to a criminal justice approach that is preoccupied with avoiding stigma while delivering "just" and "innovative alternative" punishment.

CORRECTIONAL TREATMENT SERVICES

Reviewers of the literature have routinely found that at least 40% of the better-controlled evaluations of correctional treatment services reported positive effects (Andrews et al., 1990). For example, considering only the better-controlled studies, the proportion of studies reporting positive evidence was 75% ($3/4$) in Kirby (1954), 59% ($13/22$) in Bailey (1966), 50% ($9/18$) in Logan (1972), 78% ($14/18$) in Logan when Type of Treatment \times Type of Client interactions are considered, 48% ($39/82$) in Palmer's (1975) retabulation of studies reviewed by Martinson (1974), 86% ($82/95$) in Gendreau and Ross (1979), and 47% ($40/85$) in Lab and Whitehead (1988). This pattern of results strongly supports exploration of the idea that some service programs are working with at least some offenders under some circumstances, and we think that helpful linkages among case, service, and outcome are suggested by three principles known as risk, need, and responsivity (Andrews et al., 1990).

THE RISK PRINCIPLE AND SELECTION OF LEVEL OF SERVICE

The risk principle suggests that higher levels of service are best reserved for higher risk cases and that low-risk cases are best assigned to minimal service. In the literature at least since the Gluecks (1950), the risk principle has been restated on many occasions (e.g., Glaser, 1974). Although the parameters remain to be established, evidence favoring the risk principle continues to grow (Andrews et al., 1990). In brief, when actually explored, the effects of treatment typically are found to be greater among higher risk cases than among lower risk cases. This is expected unless the need and/or responsivity principles are violated.

THE NEED PRINCIPLE AND SELECTION OF APPROPRIATE INTERMEDIATE TARGETS

Risk factors may be static or dynamic in nature, and psychology is particularly interested in those dynamic risk factors that, when changed, are associated with *subsequent* variation in the chances of criminal conduct. Clinically, dynamic risk factors are called *criminogenic needs*, and guidelines for their assessment are described elsewhere (Andrews, 1983; Andrews et al., 1990).

The most promising intermediate targets include changing antisocial attitudes, feelings, and peer associations; promoting familial affection in combination with enhanced parental monitoring and supervision; promoting identification with anticriminal role models; increasing self-control and self-management skills; replacing the skills of lying, stealing, and aggression with other, more prosocial skills; reducing chemical dependencies; and generally shifting the density of rewards and costs for criminal and noncriminal activities in familial, academic, vocational, and other behavioral settings.³ Theoretically, modifying contingencies within the home, school, and work by way of an increased density of reward for noncriminal activity may reduce motivation for crime and increase the costs of criminal activity through having more to lose (Hunt and Azrin, 1973).

Less-promising targets include increasing self-esteem without touching antisocial propensity (e.g., Wormith, 1984), increasing the cohesiveness of antisocial peer groups (e.g., Klein, 1971), improving neighborhood-wide living conditions without reaching high-risk families (the East Side, Midcity, and other community projects in Klein, 1971, and Schur, 1973), and attempts to focus on vague personal/emotional problems that have not been linked with recidivism (Andrews and Kiessling, 1980).

THE RESPONSIVITY PRINCIPLE AND SELECTION OF TYPE OF SERVICE

The responsivity principle has to do with the selection of styles and modes of service that are (a) capable of influencing the specific types of intermediate targets that are set with offenders and (b) appropriately matched to the learning styles of offenders. We begin with the general literature on the treatment of offenders and then turn to specific Responsivity \times Service interactions.

Responsivity: General principles of effective service. Drawing upon our earlier review (Andrews et al., 1990), appropriate types of service typically, but not exclusively, involve the use of behavioral and social learning principles of interpersonal influence, skill enhancement, and cognitive change. Specifically, they include modeling, graduated practice, rehearsal, role playing, reinforcement, resource provision, and detailed verbal guidance and explanations (making suggestions, giving reasons, cognitive restructuring). Elsewhere (Andrews and Kiessling, 1980), we describe the applications of these practices as (a) use of authority (a "firm but fair" approach and definitely not interpersonal domination or abuse), (b) anticriminal modeling and reinforcement (explicit reinforcement and modeling of alternatives to procriminal styles of thinking, feeling, and acting), and (c) concrete problem solving and

3. For example, Andrews et al. (1990), Andrews and Wormith (1989), Glueck and Glueck (1950), Johnson (1979), Loeber and Stouthamer-Loeber (1987), Wilson and Herrnstein (1985).

systematic skill training for purposes of increasing reward levels in anticriminal settings. High levels of advocacy and brokerage are also indicated as long as the receiving agency actually offers appropriate service. Finally, Andrews and Kiessling (1980) recommended that service deliverers relate to offenders in interpersonally warm, flexible, and enthusiastic ways while also being clearly supportive of anticriminal attitudinal and behavioral patterns. Interestingly, social learning approaches receive strong, albeit indirect, support from the prediction literature on the causal modeling of delinquency (Akers and Cochran, 1985; Jessor and Jessor, 1977).

Responsivity: Ineffective service. Some types and styles of services should be avoided under most circumstances (Andrews et al., 1990). Generally, programming for groups is to be approached very cautiously because the opening up of communication within offender groups may well be criminogenic (Andrews, 1980). In group and residential programming, clinicians must gain control over the contingencies of interaction so that anticriminal, rather than procriminal, patterns are exposed and reinforced (Buehler et al., 1966). For example, Agee's (1986) programmatic structures supporting positive change may be contrasted with the failure of unstructured, peer-oriented group counseling and permissive, relationship-oriented milieu approaches. The failure of these unstructured approaches is well documented in open community settings (e.g., Faust, 1965; Klein, 1971), in group homes operating according to the essentially nondirective guidelines of "guided group interaction" (Stephenson and Scarpitti, 1974:Ch. 8), in hospitals (Craft et al., 1966), and in prisons (Kassebaum et al., 1971; Murphy, 1972). There are also no convincing theoretical grounds for believing that young people will be "scared straight" (Finckenauer, 1982). Fear of official punishment is not one of the more important correlates of delinquency (Johnson, 1979), and yelling at people is counter to the relationship principle of effective service (Andrews, 1980).

Finally, traditional psychodynamic and nondirective client-centered therapies are to be avoided within general samples of offenders (Andrews et al., 1990). These therapies are designed to free people from the personally inhibiting controls of "superego" and "society," but neurotic misery and overcontrol are not criminogenic problems for a majority of offenders. Authorities such as Freud (in his introductory lectures on psychoanalysis, 1953) and the Gluecks (in their classic *Unraveling*, 1950) warned us about evocative and relationship-dependent psychodynamic approaches with antisocial cases.

Specific responsivity considerations. The success of highly verbal, evocative, and relationship-dependent services seems to be limited to clients with high levels of interpersonal, self-reflective, and verbal skill. The "I-Level" (Harris, 1988) and "Conceptual Level" (Reitsma-Street and Leschied, 1988) systems

provide guidance regarding the types of offenders who may respond in positive ways to services that are less structured than those we have been describing as appropriate for antisocial samples in general.

SUMMARY

Our clinically relevant and psychologically informed principles of treatment predict that criminal sanctioning without attention to the delivery of correctional service will relate to recidivism minimally. Additionally, we suggest that the delivery of services, regardless of criminal sanction or setting, is unproductive if those services are inconsistent with the principles of risk, need, and responsivity. Positively, we predict that appropriate treatment—treatment that is delivered to higher risk cases, that targets criminogenic need, and that is matched with the learning styles of offenders—will reduce recidivism.

METHOD

SAMPLES OF STUDIES

We subjected 45 of the 50 studies included in the Whitehead and Lab (1989) review to content and meta-analysis.⁴ The Whitehead and Lab sample included only studies of juvenile treatment that appeared in professional journals between 1975 and 1984 and that presented effects of treatment on binary (less-more) measures of recidivism. Studies that focused on imprisonment or the treatment of substance abuse were not included.

We also explored a second sample of studies in order to check on the generalizability of any findings based on the Whitehead and Lab sample. Sample 2 included 35 studies in our research files as of February 1989 that were not included in the Whitehead and Lab set but had employed binary measures of recidivism. Studies in sample 2 date from the 1950s through 1989, but they are not purported to be a representative sample of any particular time period. Sample 2 provides a convenient means of exploring, albeit tentatively, how well conclusions based on the Whitehead and Lab sample may generalize to adult samples.

ESTIMATES OF TREATMENT EFFECT

The Whitehead and Lab sample yielded a total of $87\ 2 \times 2$ contingency

4. Douds and Collingwood (1978) and Collingwood and Genthner (1980) were excluded because their samples appeared to overlap those of either Collingwood et al. (1976) or Williams (1984). Similarly, Fo and O'Donnell (1975) was dropped because of overlap with O'Donnell et al. (1979). The Baer et al. (1975) report on Outward Bound was excluded because the independent variable did not involve variation in service. Beal and Duckro (1977) was dropped because the outcome seemed to be court proceedings on the offense that led to a program referral.

tables reflecting the strength and direction of the association between two levels of treatment and recidivism-nonrecidivism. Whitehead and Lab, on the other hand, tabled a single phi coefficient for each study. With our approach, distinct phi coefficients were computed when distinct samples and distinct treatments were reported in a paper (e.g., Klein et al., 1977), and rather than compare two "appropriate" styles of service, we compared each service with its respective control (e.g., Jesness, 1975; Mitchell, 1983; in the latter study we estimated that the experimental recidivists were averaging twice the number of new offenses found among control recidivists). Tests of Type of Offender \times Type of Treatment interactions were represented only incidentally in Whitehead and Lab. In our report, services to higher and lower risk cases yield separate estimates of treatment effects.

Sample 2 yielded 67 treatment-recidivism tables, 44 based on studies of juveniles and 23 based on adults. (Romig's 1976 analysis of parole supervision is entered as part of the Whitehead and Lab sample, and the analysis of months incarcerated is entered as part of sample 2). The studies and treatment comparisons are outlined in detail in the appendix (Table A1) for readers who may wish to reconstruct our analyses. Phi was employed as the measure of treatment effect because it provides a convenient summary of the direction and magnitude of the association between two binary variables, is equivalent to the Pearson product-moment coefficient, is more conservative than gamma, and was used by Whitehead and Lab.

CONTENT ANALYSIS

The potential covariates of phi estimates were coded as follows:

1. Setting: The Whitehead and Lab codes for setting were accepted uncritically: nonsystem diversion, system diversion, probation/parole/community corrections, and institutional/residential. Preliminary analyses confirmed that the effects on phi coefficients of the three different community settings were statistically indistinguishable. Hence, setting was employed as a two-level, community-residential factor in further analyses. Table A1, however, includes the elaborate code.
2. Year of publication: before the 1980s/in the 1980s.
3. Quality of research design: Studies employing random assignment were coded "stronger design." Nonrandom assignment was coded "weaker design," except when information on risk factors (e.g., prior offense or "bad attitude") allowed the computation of separate treatment comparisons for lower and higher risk cases. When risk was so controlled, the design was coded "stronger."
4. Sample of studies: Whitehead and Lab/sample 2.
5. Justice system: Juvenile system/adult system.

6. Behavioral intervention: Programs described as behavioral by the authors of an evaluation study were coded "behavioral," as were those that systematically employed behavioral techniques.⁵
7. Type of treatment: Following the principles discussed above, the four levels of type of treatment were as follows:
 - a. Criminal sanctions: This code involved variation in judicial disposition, imposed at the front end of the correctional process and not involving deliberate variation in rehabilitative service (e.g., restitution, police cautioning versus regular processing, less versus more probation, and probation versus custody).
 - b. Inappropriate correctional service: Inappropriate service included (1) service delivery to lower risk cases and/or mismatching according to a need/responsivity system, (2) nondirective relationship-dependent and/or unstructured psychodynamic counseling, (3) all milieu and group approaches with an emphasis on within-group communication and without a clear plan for gaining control over procriminal modeling and reinforcement, (4) nondirective or poorly targeted academic and vocational approaches, and (5) "scared straight."
 - c. Appropriate correctional service: Appropriate service included (1) service delivery to higher risk cases, (2) all behavioral programs (except those involving delivery of service to lower risk cases), (3) comparisons reflecting specific responsivity-treatment comparisons, and (4) nonbehavioral programs that clearly stated that criminogenic need was targeted and that structured intervention was employed.⁶

5. The interventions of Hackler and Hagan (1975) were coded as nonbehavioral. William's (1984) Dallas program was coded behavioral in our study, in line with Whitehead and Lab's coding of the Collingwood et al. (1976) report on the same program as behavioral. Both studies of restitution were coded nonbehavioral in our study (only one of which was coded nonbehavioral by Whitehead and Lab). The Ross and Fabiano behavioral skills program was coded as unspecified because it was a comparison condition for a more appropriate program.

6. Treatments admitted to the "appropriate" category by criterion "4" were appropriate according to the principles of need and responsivity (although some readers might disagree): Kelly et al. (1979) encouraged delinquents to explore alternative values and behavior patterns; the transactional program (Jesness, 1975) established individualized targets based on criminogenic need; the family counseling program of McPherson et al. (1983) targeted discipline and self-management; Bachara and Zaba (1978) focused on specific learning problems; Shore and Massimo (1979) studied very intensive, highly individualized, vocationally oriented counseling. Some difficult calls, which we ultimately coded as unspecified, included the following: Druckman's (1979) family counseling, which hinted at a nondirective client-centered approach but lacked a clear statement of same; the paraprofessional advocacy program of Seidman et al. (1980), Wade et al.'s (1977) family program, and Sowles and Gill's (1970) counseling programs all included references to both

- d. Unspecified correctional service: Unspecified service was a residual set for those comparisons involving treatments that we could not confidently label appropriate or inappropriate.

HYPOTHESES

Our first hypothesis is that Type of Treatment is the major source of variation in estimates of effect size (phi coefficients).⁷ Specifically, the contributions of Type of Treatment to the prediction of effect size will exceed the predictive contributions of year of publication, quality of design, setting, behavioral-nonbehavioral intervention, justice system (juvenile or adult), and sample of studies examined.

Our second hypothesis is that appropriate correctional service will yield an average estimate of impact on recidivism that is positive and exceeds those of criminal sanctions, unspecified service, and inappropriate service.

RESULTS AND DISCUSSION

A preliminary comparison of the two samples of studies was conducted on various control variables. The comparisons reflected an obvious concern that any systematic differences between the Whitehead and Lab sample and sample 2 be documented. Overall, apart from the inclusion of studies of adult treatment in sample 2, the two samples of studies were found to be reasonably comparable across the various potential predictors of treatment effect size explored in this paper (see row 2 of the intercorrelation matrix in Table 1).⁸

appropriate and inappropriate elements. Some "treatments" in Rausch (1983) may have involved unspecified service components, but they were assigned to the criminal sanction set in the spirit of the Rausch analysis of labelling and deterrence theory.

7. Reliability and validity in coding the type of treatment are obvious concerns. One of our ongoing research efforts involves building a psychometrically sound instrument that can be used to assess the correctional appropriateness not simply of printed program descriptions but also of ongoing programs. The psychometrics of this instrument will be the focus of future reports. For now, we have indicated in Table A1 what comparisons were assigned to what categories, and they are thereby appropriately and easily the focus of critical review.

8. The Whitehead and Lab sample ($n = 87$) and sample 2 ($n = 67$) were virtually identical in the proportion of tests falling in the three categories of treatment services: inappropriate ($^{20}/_{87}$ vs. $^{16}/_{67}$), unspecified ($^{16}/_{87}$ vs. $^{16}/_{67}$), appropriate ($^{30}/_{87}$ vs. $^{24}/_{67}$). The nonsignificant trend was an underrepresentation of comparisons involving criminal sanctions in sample 2 ($^{21}/_{87}$ vs. $^9/_{67}$, $r = .08$). Because the Whitehead and Lab sample was limited to studies of juveniles, there was an expected and substantial correlation between Justice System and Sample of Studies ($\phi = .48$, $p < 0.01$). Not as obviously deducible from the descriptions of the samples provided in the methods section, sample 2 included a statistically significant overrepresentation of institution-based treatments ($\phi = .21$, $p < .05$).

Table 1. Intercorrelation Matrix, Correlations with Phi Coefficients (N = 154), and Mean Phi Coefficients at Each Level of Each Variable

	A Type of Treatment	B Sample of Studies	C Justice System	D Year of Publication	E Quality of Design	F Setting
A.		.08	.01	-.14	.10	.11
B.			.48**	.11	.14	.21*
C.				.23*	.15	-.01
D.					-.10	-.33**
E.						-.17
Simple Unadjusted Correlation with Phi (Mean Phi = .104, SD = .234)						
	.69**	.18*	.02	.09	-.03	-.07
Unadjusted Mean Phi Coefficient (n) at Each Level of Each Variable						
1.	-.07 (30)	.07 (87)	.10 (131)	.08 (76)	.11 (81)	.11 (119)
2.	-.06 (38)	.15 (67)	.11 (23)	.13 (78)	.10 (73)	.07 (35)
3.	.13 (32)					
4.	.30 (54)					
<i>F</i> Values for Unadjusted Effects						
	45.62**	5.27*	0.49	1.33	0.11	0.74
Partial Correlation with Phi, Controlling for Other Variables						
	.72**	.15*	.02	.18*	-.07	-.16*
Adjusted Mean Phi Coefficient (n) at Each Level of Each Variable						
1.	-.08 (30)	.07 (87)	.10 (131)	.06 (76)	.11 (81)	.12 (119)
2.	-.07 (38)	.14 (67)	.11 (23)	.14 (78)	.08 (73)	.03 (35)
3.	.10 (32)					
4.	.32 (54)					
<i>F</i> Values for Adjusted Effects						
	57.15**	6.99*	0.33	9.80**	1.18	7.43**

* $p < .05$

** $p < .01$

Note: The levels of the variables are as follows: Type of Treatment (criminal sanctions, inappropriate service, unspecified service, appropriate service), Sample of Studies (Whitehead and Lab, sample 2), Justice System (juvenile, adult), Year of Publication (before 1980, 1980s), Quality of Research Design (weaker, stronger), and Setting (community, institutional/residential).

A qualitative and nonparametric summary of findings is appended, but here the hypotheses are tested directly.

HYPOTHESIS 1: RELATIVE PREDICTIVE POTENTIAL OF TYPE OF TREATMENT

Inspection of the first column of Table 1 reveals that the correlation between Type of Treatment and phi coefficients was strong ($\text{Eta} = .69$) and, with simultaneous control introduced for each of the other variables through

analysis of covariance techniques in a multiple classification analysis, the correlation increased to .72 (Beta). The only other significant unadjusted predictor of phi coefficients was Sample of Studies (.18, unadjusted; .15, adjusted). With controls for Type of Treatment introduced, the magnitude of correlation with phi coefficients increased to significant levels for Year of Publication (from .09 to .18) and for Setting (from $-.07$ to $-.16$).

Comparisons from sample 2, recency of publication and community-based treatment, were each associated with relatively positive effects of treatment. These trends, however, were overwhelmed by Type of Treatment. In a stepwise multiple regression, the only variables contributing significantly ($p < .05$) to variation in phi estimates were Type of Treatment (beta = .69) and Year of Publication (beta = .19), $F(2/151) = 68.01$, $p < .000$, adjusted R square = .47. In summary, our first hypothesis was strongly supported: Type of Treatment was clearly the strongest of the correlates of effect size sampled in this study.

HYPOTHESIS 2: THE IMPORTANCE OF APPROPRIATE CORRECTIONAL SERVICE

As described above, the main effect of Type of Treatment on phi estimates was strong and positive, with or without adjustment for control variables. Scheffe tests confirmed that the mean phi coefficient for appropriate correctional service (.30, $n = 54$) was significantly ($p < 0.05$) greater than that for criminal sanctions ($-.07$, $n = 30$), inappropriate service ($-.06$, $n = 38$), and unspecified service (.13, $n = 32$). In addition, Scheffe tests revealed that the average effect of unspecified correctional service significantly exceeded the mean phi coefficients for criminal sanctions and inappropriate service.

Mean phi coefficients for each of the four types of treatment are presented in Table 2 at each of the two levels of the various control variables. Inspection reveals a robust correlation between Type of Treatment and effects on recidivism at each level of Sample of Studies, Justice System, Year of Publication, Design, and Setting.

The only variable to interact significantly ($p < 0.05$) with Type of Treatment was Year of Publication. It appears that criminal sanctions yielded more negative phi estimates in the earlier literature than in the more recent literature ($-.16$ versus $-.02$, $F[1/28] = 8.98$, $p < .006$). This reflects a greater representation of residential studies in the earlier years (the negative implications of residential programs will be discussed below). More interestingly, studies of appropriate correctional treatment in the 1980s yielded a much higher mean phi estimate than did earlier studies of appropriate treatment (.40 versus .24, $F[1/52] = 8.40$, $p < .005$). Most likely, this reflects three trends. First, the earlier studies included what are now recognized to be unsophisticated applications of token economy systems (see Ross and

McKay, 1976). Second, studies of the 1980s paid greater attention to cognitive variables (Ross and Fabiano, 1985). Third, the positive effects of short-term behavioral family counseling have been replicated in the 1980s (Gordon et al., 1988). In summary, Hypothesis 2 was supported to a stronger degree than was initially anticipated: Both appropriate and unspecified correctional services were significantly more effective in reducing recidivism than were criminal sanctions and inappropriate service.

NOTE ON BEHAVIORAL INTERVENTION

The use of behavioral methods was a major element in the coding of appropriateness according to the principle of responsivity. Not surprisingly, in view of our coding rules, 95% ($38/41$) of the behavioral treatments were coded as appropriate treatment and 70% ($38/54$) of the appropriate treatments were behavioral. Thus, the correlation between Behavioral Intervention and Type

Table 2. The Effect of Type of Treatment on Recidivism at Each Level of the Control Variables: Mean Phi Coefficients (N)

	Criminal Sanctions	Correctional Service		
		Inapp.	Unspec.	Appropriate
Sample of Studies				
Whitehead and Lab	-.04 (21)	-.11 (20)	.09 (16)	.24 (30)
Sample 2	-.13 (9)	-.02 (18)	.17 (16)	.37 (24)
Justice System				
Juvenile	-.06 (26)	-.07 (31)	.13 (29)	.29 (45)
Adult	-.12 (4)	-.03 (7)	.13 (3)	.34 (9)
Year of Publication				
Before the 1980s	-.16 (10)	-.09 (22)	.17 (11)	.24 (33)
1980s	-.02 (20)	-.03 (16)	.11 (21)	.40 (21)
Quality of Research Design				
Weaker	-.07 (21)	-.04 (10)	.15 (18)	.32 (26)
Stronger	-.07 (9)	-.08 (22)	.11 (14)	.29 (28)
Setting				
Community	-.05 (24)	-.14 (31)	.12 (27)	.35 (37)
Institution/Res.	-.14 (6)	-.15 (7)	.21 (5)	.20 (17)
Behavioral Intervention				
No	-.07 (30)	-.06 (36)	.13 (31)	.27 (16)
Yes	—	-.09 (2)	.23 (1)	.31 (38)
Overall Mean Phi	-.07 (30)	-.06 (38)	.13 (32)	.30 (54)
S.D.	.14	.15	.16	.19
Mean Phi Adjusted for Other Variables	-.08 (30)	-.07 (38)	.10 (32)	.32 (54)

of Treatment was substantial ($r = .62$). As expected, Behavioral Intervention, on its own, yielded a significantly greater mean phi coefficient than did non-behavioral treatment. The mean phi coefficients were .29 (SD = .23, $n = 41$) and .04 (SD = .20, $n = 113$) for behavioral and nonbehavioral interventions, respectively ($F[1/152] = 46.09, p < .000, \text{Eta} = .48$). Once controls were introduced for Type of Treatment, however, the contribution of Behavioral Intervention was reduced to nonsignificant levels, $F(1/151) < 1.00, \text{Beta} = .07$. It appears, then, that use of behavioral methods contributes to the reduction of recidivism, but those contributions are subsumed by the broader implications of risk, need, and responsivity as represented in our Type of Treatment variable.

NOTE ON RESIDENTIAL PROGRAMMING

The minor but statistically significant adjusted main effect of setting is displayed in column six of Table 1. This trend should not be overemphasized, but the relatively weak performance of appropriate correctional service in residential facilities is notable from Table 2 (mean phi estimate of .20 compared with .35 for treatment within community settings, $F[1/52] = 5.89, p < .02$). In addition, inappropriate service performed particularly poorly in residential settings compared with community settings ($-.15$ versus $-.04, F[1/36] = 3.74, p < .06$). Thus, it seems that institutions and residential settings may dampen the positive effects of appropriate service while augmenting the negative impact of inappropriate service. This admittedly tentative finding does not suggest that appropriate correctional services should not be applied in institutional and residential settings. Recall that appropriate service was more effective than inappropriate service in all settings.

CONCLUSIONS

The meta-analysis has revealed considerable order in estimates of the magnitude of the impact of treatment upon recidivism. As predicted, the major source of variation in effects on recidivism was the extent to which service was appropriate according to the principles of risk, need, and responsivity. Appropriate correctional service appears to work better than criminal sanctions not involving rehabilitative service and better than services less consistent with our a priori principles of effective rehabilitation. This review has convinced us that the positive trends that we and others detected in the literature of the 1960s and early 1970s were indeed worthy of serious application and evaluation. There is a reasonably solid clinical and research basis for the political reaffirmation of rehabilitation (Cullen and Gilbert, 1982).

The importance of clinical and theoretical relevance in programming and in meta-analysis has been demonstrated—the sanction and treatment services should be differentiated, and the action in regard to recidivism appears to

reside in appropriate treatment. Much, however, remains to be done. We look forward to critiques and revisions of the principles of risk, need, and responsivity as stated and applied herein. What comparisons were assigned to what analytic categories is described in our report and is thereby easily and appropriately the focus of critical review (see note 7). Reserved for future reports are the many issues surrounding therapeutic integrity (Gendreau and Ross, 1979), the measurement of recidivism (Andrews, 1983), and methodological issues such as sample size (Lipsey, 1989). Similarly, we anticipate exploring in detail the value of alternatives to ordinary least squares analyses (for now, nonparametric tests of Type of Treatment are appended). Gender effects and the treatment of sex offenders, substance abusers, and inmates of long-term institutions require detailed analyses. Toward these ends, our meta-analytic data base is being extended. Our focus here, however, remains on type of service and effect size.

Of immediate concern is the meaning of an average phi coefficient of .30 for comparisons involving appropriate correctional service. First, until convinced otherwise, we will assume that an average phi of .30 is more positive, clinically and socially, than the mean effects of the alternatives of sanctioning without regard for service or servicing without regard to the principles of effective correctional service. Casual review of recidivism rates will reveal that, on average, appropriate treatment cut recidivism rates by about 50% (in fact, the mean reduction was 53.06%, $SD = 26.49$). Thus, we do not think that the positive effects are "minimal". Second, the correlation between effect size estimates and type of treatment approached .70. Correlations of this magnitude are unlikely to reflect "lucky outliers" (Greenwood, 1988), although more systematic sources of error may indeed inflate correlation coefficients. Third, issues surrounding the assessment of the clinical and social significance of diverse measures of effect size are indeed worthy of ongoing research. Future reports on our expanding data bank will compare various estimates of effect size, including some direct estimates of clinical/social significance. For now, we are interested in discovering ethical routes to strengthened treatment effects, but we are not talking about magical cures.

Critics of rehabilitation are correct when they note that the average correlation between treatment and recidivism is not 1.00. At the same time, critics might be asked to report on the variation that their "preferred" variable shares with recidivism. For example, if their preferred variable is social class, they may be reminded that some reviewers have estimated that the average correlation between class and crime is about $-.09$ (Tittle et al., 1978). If their preferred approach is incapacitation or community crime prevention, they may be reminded of the minimal effects so far reported for these strategies (Rosenbaum, 1988; Visher, 1987). Critics, be they supporters of social class or incapacitation, likely will respond with examples of particular studies that yielded high correlations with indicators of crime. We remind them that

the largest correlations are no better estimates of the average effect than are the least favorable estimates. We also remind them that the positive evidence regarding appropriate rehabilitative service comes not from cross-sectional research—the typical research strategy of critics of rehabilitation—but from deliberate and socially sanctioned approximations of truly experimental ideals. Finally, we remind the critics that one can be interested in the effects of class, punishment, and prevention programs on individual and aggregated crime rates while maintaining multiple interests and without letting one interest justify dismissal of the value of another.

This meta-analysis has done more than uncover evidence that supported our *a priori* biases regarding the importance of appropriate correctional service. The finding that the effects of inappropriate service appeared to be particularly negative in residential settings while the positive effects of appropriate service were attenuated was something of a surprise. While sensitive to the difficulties of working with antisocial groups, we did not predict this incidental affirmation of a widely shared preference for community over residential programming. Institutions and group homes, however, remain important components of correctional systems and hence active but thoughtful service is indicated. The literature should be carefully scrutinized in order to avoid inappropriate service, and follow-up services in the community may be necessary in order to maximize effectiveness. Finally, the suppressive impact of residential programming suggests that the negative effects of custody are better established than we anticipated.

The effect of the quality of the research design on estimates of effect size was relatively minor. Even if some design problems do inflate effect size estimates (Davidson et al., 1984; Lipsey, 1989), the interesting finding was that comparisons involving more and less rigorous research designs agreed as to what types of treatment were most effective. Program managers and frontline clinicians who find truly randomized groups to be practically or ethically impossible may consider conducting an evaluation that approximates the ideals of a true experiment. In particular, we strongly endorse the use of designs that introduce controls for the preservice risk levels of clients and that actually report on risk \times service interactions. In addition, even evaluations that rely upon comparisons of clients who complete or do not complete treatment may be valuable.

Finally, the number of evaluative studies of correctional service should increase dramatically over the next decade. Although millions of young people were processed by juvenile justice systems during the past decade, the total number of papers in the Whitehead and Lab (1989) set that involved systematic study of appropriate service was 21. Were it not for behavioral psychologists, the number of papers involving appropriate service would have been nine. From a positive perspective, there is renewed interest, vigor, and sensitivity in the study of the psychology of criminal conduct (Andrews and

Wormith, 1989; Loeber and Stouthamer-Loeber, 1987; Wilson and Herrnstein, 1985) and of correctional service and prevention (e.g., Andrews et al., 1990; Cullen and Gendreau, 1988; Currie, 1989; Gendreau and Ross, 1987). There are solid reasons to focus in ethical and humane ways on the client and the quality of service delivered within just dispositions.

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APPENDIX: NONPARAMETRIC SUMMARY AND OVERVIEW OF THE STUDIES

Descriptions of the 154 explorations of treatment and recidivism are presented in Table A1. The major subheadings in the table identify Type of Treatment. Levels of the remainder of the variables are indicated in the columns labeled Sample, System, Design, Setting, Beh., and Phi. As noted at the bottom of the table, numeric codes reflect the levels for each Sample of Studies, Justice System, Quality of Research Design, Setting, and Behavioral Intervention. The minor subheadings in Table A1 enhance descriptions of type of treatment but did not enter into the analyses. The Comments column is intended as a guide for readers who wish to recreate the 2×2 tables that we drew from the original studies. Many of the comments will make little sense without reference to those original studies.

CRIMINAL SANCTIONS

Inspection of Table A1 provides an overview of the 30 "criminal justice" comparisons. Phi coefficients were signed positive when lower recidivism rates were found under "more" processing conditions. The first eight comparisons were culled from four studies of diversion through police cautioning versus regular processing, and only one phi estimate, a negative one, reached the .20 level (the standard of effectiveness in Whitehead and Lab was a positive phi coefficient of at least .20). The next set of 20 comparisons involved less versus more severe judicial dispositions, and six of the phi coefficients, all negative, equaled or exceeded .20. The final two studies in the criminal justice set reveal that completion of restitution contracts was only mildly associated with reduced recidivism rates. One might expect that the confound with selection factors would have had a stronger inflationary effect on the phi estimates. Overall, the findings of the 30 criminal justice comparisons were consistent with expectations: Only seven (20%) phi coefficients reached the criterion of .20 and, more consistent with labelling than deterrence theory, they were each negative in sign.

INAPPROPRIATE CORRECTIONAL SERVICE

Thirty-eight comparisons involved "inappropriate" treatments—treatments that we predicted would be either unrelated to recidivism or have a negative effect. Inspection confirms that only five phi coefficients reached the .20 level, and each was negative in sign. The mean phi coefficient was $-.06$. The only surprises in this set of comparisons were the positive phi coefficients, albeit statistically insignificant, yielded by Davidson et al.'s (1987) paraprofessional relationship-oriented program. Overall, the hypothesized ineffectiveness of inappropriate service was supported.

UNSPECIFIED CORRECTIONAL SERVICE

Table A1 provides an overview of 32 comparisons involving unspecified correctional service. The number of positive phi coefficients equaling or exceeding .20 was 10 (34%), and the mean phi was clearly positive but low (.13). In regard to our hypothesis, we now begin to uncover evidence of the effectiveness of rehabilitative service. Note, in addition, the many significant but low phi estimates. Obviously, many weak effects emerged significant statistically because of the large samples studied. Not as obvious, except upon a reading of the original papers (e.g., Palmer and Lewis, 1980), several Type of Client \times Type of Service interactions were found in this set of studies. Hence, some of the tabled effect size estimates are misleading because they reflect an averaging of what were actually positive and negative effects dependent upon type of case. For example, Palmer and Lewis (1980) reported that nonspecific family counseling for female first offenders was associated with clearly negative effects, apparently replicating the Druckman (1979) study. Unfortunately, these interactions were not reported in a manner that allowed the simple effects of treatment to be coded by type of case. Klein (1986) also reported some intriguing interactions that suggest weak or negative effects with low-risk cases. This pattern would be consistent with those tests of treatment in the inappropriate service set that involved the delivery of services to low-risk cases (studies 58-66 in Table A1).

APPROPRIATE CORRECTIONAL SERVICE

The overall pattern here reveals that 70% ($38/54$) of the comparisons within the appropriate service set yielded a positive phi of at least .20, and the overall mean phi coefficient was .30. In every comparison but two, which involved token economy programs in residential settings, the phi coefficients were positive. Appropriate treatment appears to work at least moderately well. Note that many of the studies in the appropriate set involved small samples (and sample size is inversely correlated with effect size: Lipsey, 1989). Future research will explore the relative contributions of methodological, statistical, and therapeutic integrity factors to this correlation between sample size and effect size. Preliminary explorations, however, have revealed that the effect of Type of Treatment on phi estimates is found in both smaller and larger sample studies. For example, 30 of the 54 tests of appropriate service involved a control group with 30 or fewer cases, compared with only 28 of the 100 other tests of treatment. Among the small sample tests, 77% ($23/30$) of the tests of appropriate treatment yielded a positive phi of at least .20 compared with 21% ($6/28$) of the tests of less appropriate treatments. The corresponding figures among the tests based on larger samples were 63% ($15/24$) for appropriate treatment and 7% ($5/72$) for other treatments.

NONPARAMETRIC SUMMARY

The proportion of coefficients within each of the four levels of Type of Treatment reaching or exceeding the Whitehead and Lab (1989) standard of effectiveness were .00, .00, .34, and .70 for the criminal sanction, inappropriate service, unspecified service, and appropriate service sets, respectively; chi-square = 68.83, $p < .000$, Eta = .67, $r = .64$, gamma = .92.

Table A1. Summary of 154 Tests of Correctional Treatment

ID Author (Year)	Sample	System	Design	Setting	Beh	Phi	Rec Rate: % (n)				Comments
							Treat	Control			
TYPE OF TREATMENT: 1) CRIMINAL SANCTIONS											
Sanctioning vs Cautioning											
1 Kraus (81)	1	1	1	1	1	NSD	1 -15	41 (78)	27 (78)		
2 Klein (86)	2	1	2	1	NSD	1 -25*	73 (81)	49 (82)		Release vs Petition	
Studies with Higher Risk Cases											
3 Mott (83)	1	1	2	1	NSD	1 -08	58 (167)	46 (26)			
4	1	1	2	1	NSD	1 -19	53 (30)	80 (5)		(girls)	
5 Farrington & P (81)	1	1	2	1	NSD	1 -04	45 (11)	50 (8)			
Studies with Lower Risk Cases											
6 Mott (83)	1	1	2	1	NSD	1 -03	33 (57)	30 (174)			
7	1	1	2	1	NSD	1 -05	14 (7)	9 (75)		(girls)	
8 Farrington & P (81)	1	1	2	1	NSD	1 -10	0 (2)	12 (24)			
More vs Less Severe Disposition											
9 Viano (76)	1	1	1	1	SD	1 -08	26 (35)	19 (21)			
10	1	1	1	1	SD	1 -20	26 (35)	10 (38)		Informal adjustment	
11	1	1	1	1	SD	1 -12	19 (21)	10 (38)		Dismissal	
12 Rausch (83)	1	1	1	1	SD	1 -01	47 (196)	44 (18)			
13	1	1	1	1	SD	1 -02	47 (196)	45 (91)		Probation	
14	1	1	1	1	SD	1 -05	47 (196)	47 (45)		Maximum Community	
15	1	1	1	1	SD	1 -04	40 (45)	44 (18)		Community agent	
16	1	1	1	1	SD	1 -05	40 (45)	45 (91)		Probation	
17	1	1	1	1	SD	1 -00	45 (91)	44 (18)		Community agent	
18 Kraus (78)	1	1	1	1	PPC	1 -28*	64 (90)	37 (90)			
19 Horowitz & W (79)	1	1	2	1	PPC	1 -22	91 (196)	75 (67)			
20	1	1	2	1	PPC	1 -32*	83 (29)	43 (106)		Lower risk	
21 Stephenson & S (74)	2	1	1	2		1 -23*	61 (44)	39 (44)		Prob vs Group Home	
22	2	1	1	2		1 -20*	59 (44)	39 (44)		Inst vs Prob	
23	2	1	1	2		1 -02	59 (44)	61 (44)		Inst vs Group Home	
24 Phillips P F & W (73)	2	1	1	1	PPC	1 -01	53 (15)	54 (13)		Inst vs Prob	
25 Vito & A (81)	2	2	1	1	PPC	1 -07*	17 (585)	12 (938)		Shock Incar vs Prob	
26 Petersilia T & P (86)	2	2	1	2		1 -07	41 (162)	34 (162)		I vs P (viol offs)	
27	2	2	1	2		1 -18*	61 (219)	43 (219)		I vs P (prop offs)	
28	2	2	1	2		1 -17*	35 (130)	20 (130)		I vs P (drug offs)	
Restitution (Successful Completion of)											
29 Schicor & B (82)	1	1	1	1	NSD	1 -14	7 (59)	15 (55)			
30 Schneider & S (84)	1	1	1	1	PPC	1 -18*	60 (190)	80 (61)			

Table A1. (continued)

ID Author (Year)	Sample	System	Design	Setting	Beh	Phi	Rec Rate: % (n)		Comments
							Treat	Control	
TYPE OF TREATMENT: 2) INAPPROPRIATE CORRECTIONAL SERVICE									
Intensive Non-Behavioral Group Interaction (including Recreation)									
31 Byles (81)	1	1	1	1	1	11	71	(31) 60	(35) Attendance Centers
32	1	1	1	1	1	08	68	(25) 76	(49)
33 Shorts (86)	2	1	1	1	1	01	48	(43) 47	(19)
34	2	1	1	1	1	03	10	(31) 12	(17)
35 Winterdyk & R (82)	2	1	2	1	1	00	20	(30) 20	(30) Wilderness Program
Non-Directive Client-Centered/Psychodynamic Counselling									
36 Klein A & P (77)	1	1	2	1	1	11	60	(30) 49	(56)
37	1	1	2	1	1	17	61	(30) 40	(10) (Sibs)
38 Adams & V (82)	1	1	2	2	1	44*	100	(14) 69	(13) Group Psychodrama
39 Davidson R B M & E (87)	2	1	1	1	1	06	33	(12) 43	(112) Rel vs Beh/Adv/Act
40	2	1	1	1	1	16	33	(12) 58	(89) Rel vs Controls
41 Berman (78)	2	2	2	1	1	00	25	(16) 25	(16) Non-Bev Para-prof
Non-Behavioral Milieu Therapy/Guided Group Interaction									
42 Stringfield (77)	1	1	1	1	1	31*	56	(32) 25	(20) Milieu vs Fam
43 Clarke & C (78)	1	1	2	2	1	01	70	(86) 69	(87)
44 Stephenson & S (74)	2	1	1	1	1	20*	59	(44) 39	(44) GGI vs Prob
45	2	1	1	2	1	00	59	(44) 59	(44) GGI vs Inst
46	2	1	1	2	1	02	59	(44) 61	(44) GGI vs Group Home
47 Empey & E (72)	2	1	2	1	1	03	58	(71) 54	(79) GGI vs Prob
48	2	1	1	1	1	16*	64	(44) 79	(132) GGI vs Incar
49 Craft S & G (64)	2	1	2	2	1	13	58	(24) 46	(24) Milieu vs Auth
Non-Behavioral Weakly-Focused Academic/Vocational Approaches									
50 Willman & S (82)	1	1	1	1	1	11	71	(68) 60	(68)
51 Maskin (76)	1	1	1	2	1	39*	50	(30) 13	(30)
52 Hackler & H (75)	1	1	2	1	1	05	33	(85) 29	(70)
53	1	1	2	1	1	07	25	(67) 32	(131)
54 Zeisel (82)	2	2	2	1	1	00	49	(???) 49	(???) (TARP)
Confrontational Groups (Scared Straight)									
55 Buckner & C-L (83)	1	1	1	1	1	04	41	(100) 37	(100)
56	1	1	1	1	1	11	22	(50) 32	(50) (female)
57 Lewis (83)	1	1	2	1	1	16	67	(55) 81	(53)
Mismatched According to Risk or Responsivity/Need Systems									
58 Sorenson (78)	1	1	2	1	1	35*	30	(30) 4	(45)
59 Byles & M (79)	1	1	2	1	1	12	57	(94) 43	(114)
60 Gruher (79)	1	1	2	1	1	06	32	(38) 38	(40)
61 Quay & L (77)	1	1	2	1	1	07	28	(268) 36	(92)
62 O'Donnell L & F (79)	1	1	2	1	1	07	25	(169) 19	(130)
63	1	1	2	1	1	10	18	(116) 11	(65) (female)
64 Baird H & B (79)	2	2	2	1	1	13	10	(58) 3	(58)
65 Andrews & K (80)	2	2	2	1	1	09	17	(58) 11	(62) Para-prof prog
66 Andrews K M & R (86)	2	2	2	1	1	09	14	(98) 2	(28) Para-prof prog
67 Grant & G (59)	2	2	2	2	1	14*	52	(91) 38	(144) Low maturity
68 Andrews & K (80)	2	2	2	1	1	11	42	(23) 48	(13) Low Emp/High Risk

Table A1. (continued)

ID Author (Year)	Sample System	Design	Setting	Beh	Phi	Rec Rate: % (n)			Comments		
						Treat	Control				
TYPE OF TREATMENT: 3) UNSPECIFIED CORRECTIONAL SERVICE											
Service-Oriented Diversion											
69 Regoli W & P (85)	1	1	1	1	1	19*	2	(52)	11	(52)	Complete prog vs pre-program controls
70	1	1	1	1	1	16*	8	(98)	21	(98)	
71	1	1	1	1	1	31*	6	(61)	32	(61)	
72	1	1	1	1	1	12	10	(72)	18	(72)	
73	1	1	1	1	1	-06	29	(119)	24	(119)	
74	1	1	1	1	1	-05	26	(107)	24	(107)	
75 Lipsey C & B (81)	1	1	1	1	1	18*	26	(776)	44	(476)	Complete vs Incomplete
76	1	1	1	1	1	10*	27	(870)	37	(533)	
77	1	1	1	1	1	10*	35	(543)	45	(333)	
78 Whitaker & S (84)	1	1	1	1	1	10*	33	(???)	46	(???)	More vs Less Diverse
79 Palmer & L (80)	1	1	1	1	1	07*	25	(1345)	31	(1192)	Unspec quasi control
80 Gilbert (77)	1	1	1	1	1	30*	34	(58)	65	(78)	Assign vs Preprog conts
81 Klein (86)	2	1	2	1	1	17*	57	(88)	73	(81)	Ref vs Petition
82	2	1	2	1	1	12	62	(55)	73	(81)	Ref+ vs Petition
83	2	1	2	1	1	-08	57	(88)	49	(82)	Ref vs Release
84	2	1	2	1	1	-13	62	(55)	49	(82)	Ref+ vs Release
Appropriateness Uncertain On Targets/Style											
85 Romig (76)	1	1	1	1	1	15*	14	(301)	27	(127)	Parole Supervision
86 Jackson (83)	1	1	2	1	1	03	82	(198)	84	(98)	Parole Supervision
87 Barkwell (76)	1	1	2	1	1	-16	88	(16)	75	(16)	Prob Serv vs Surveill
88 Druckman (79)	1	1	1	1	1	-17	50	(14)	33	(15)	Family Counseling
89 Seidman R & D (80)	2	1	2	1	1	46*	50	(12)	90	(12)	Parapro Advocacy
90 Wade M L & F (77)	2	1	1	1	1	51*	15	(34)	70	(77)	Family crisis
91 Romig (76)	2	1	1	2	1	10*	12	(177)	20	(251)	Mths served/rel order
92 Johnson & G (83)	2	1	2	1	1	05	3	(87)	5	(87)	State Vocational Serv
93 Sowles & G (70)	2	1	2	2	1	22	37	(30)	60	(15)	Ind/Group (boys)
94	2	1	2	2	1	38	0	(10)	20	(5)	(girls)
95 Ostrum S R & M (71)	2	1	2	1	1	22	26	(19)	48	(19)	Mixed socio-psych prog
96 Redfering (73)	2	1	1	2	1	29	35	(17)	64	(14)	Cl-Ce Group (appro tar)
97 Jesness in grant (65)	2	1	2	2	1	05	73	(11)	77	(13)	Small vs Large Units
98 Ross F & E (88)	2	2	2	1	2	23	47	(17)	70	(23)	Life Skill vs Reg Prob
99 Vinglis A & C (82)	2	2	2	1	1	-05	15	(58)	19	(62)	Impaired Driving
100 Walsh (85)	2	2	1	1	1	21*	24	(50)	44	(50)	Gen Equiva Prog

Table A1. (continued)

ID Author (Year)	Sample System Design	Setting	Beh Phi	Rec Rate: % (n)			Comments
				Treat	Control		
TYPE OF TREATMENT: 4) APPROPRIATE CORRECTIONAL SERVICE							
Short-Term Behavioral/Systems Family Counseling							
101 Alexander C S P (76)	1	1	1 1 SD	2	64*	0 (12)	56 (9)
102 Klein A & P (77)	1	1	2 1 SD	2	23*	26 (46)	48 (56)
103	1	1	2 1 SD	2	18	20 (46)	40 (10) (sibs)
104	1	1	2 1 SD	2	31*	26 (46)	57 (30)
105	1	1	2 1 SD	2	41*	20 (46)	60 (30) (sibs)
106 McPherson M & R (83)	1	1	2 1 SD	1	20*	33 (15)	58 (60) (target = discipline)
107 Gordon A G & M (88)	2	1	1 1 SD	2	83*	0 (12)	75 (4) (girls)
108	2	1	1 1 SD	2	44*	20 (15)	65 (23) (boys)
109 Stuart J & T (76)	2	1	2 1 NSD	2	19	0 (30)	7 (30)
110 Barton A W T & W (85)	2	1	1 2	2	41*	60 (30)	93 (44)
Structured One-on-One Paraprofessional/Peer Program							
111 Kelly H & B (79)	1	1	1 1 NSD	1	26*	0 (65)	12 (63) (target = thinking)
112 Mitchell (83)	1	1	1 1 PPC	2	29*	14 (29)	43 (63)
113 Ross & M (77)	1	1	1 2	2	33	7 (15)	33 (15)
114	1	1	1 2	2	46*	7 (15)	60 (45)
115 Seidman R & D (80)	2	1	2 1 NSD	2	51*	48 (25)	100 (12) Beh/adv vs Controls
116	2	1	2 1 NSD	2	60*	25 (12)	92 (12) Beh vs Controls
117	2	1	2 1 NSD	2	17	25 (12)	50 (12) Beh vs Advocacy
118 Davison R B M & E (87)	2	1	1 1 NSD	2	15*	43 (112)	58 (89) Beh/Adv/Action vs C
119 Andrews (80)	2	2	2 1 PPC	2	15*	15 (72)	28 (116) Hi Emp Hi So Officers
Specialized Academics/Vocational Services							
120 Bachra & Z (78)	1	1	1 1 NSD	1	38*	7 (31)	42 (48) (specific focus)
121 Kratcoski & K (82)	1	1	1 1 PPC	2	65*	42 (38)	100 (83)
122 Walter & M (80)	2	1	1 1 PPC	2	62*	9 (53)	70 (23)
123 Shore & M (79)	2	1	2 1 NSD	1	52*	40 (10)	90 (10) (intense/individualized)
Intensive Structured Skill Training							
124 Collingwood D & W (76)	1	1	1 1 SD	2	41*	11 (813)	51 (196) Participants vs Nonpar
125 Williams (84)	1	1	1 1 SD	2	33*	21 (564)	64 (77) Participants vs Nonpar
126 Sarason & G (73)	2	1	2 2	2	18*	19 (64)	34 (64) Modeling vs Contr
127	2	1	2 2	2	24*	14 (64)	34 (64) Discuss vs Control
128 Ross F & E (88)	2	2	2 1 PPC	2	52*	18 (22)	70 (23) Cog-Beh vs Reg Prob
129	2	2	2 1 PPC	2	31*	18 (22)	47 (17) Cog-Beh vs Life Skill
130 Dutton (86)	2	2	1 1 PPC	2	43*	4 (50)	40 (50) Cog-beh (wife batter)
Introduction of Individualized Rehabilitative Regime							
131 Jesness (75)	1	1	1 2	2	10*	32 (398)	42 (499) Token Eco vs Pre-Prog

Table A1. (continued)

ID Author (Year)	Sample	System	Design	Setting	Beh	Phi	Rec Rate: % (n)		Comments
							Treat	Control	
132	1	1	1	2	1	14*	33 (453)	47 (660)	(target=ind crimino need)
133 Ross & M (76)	1	1	1	2	2	27	10 (10)	33 (15)	
134	1	1	1	2	2	38*	10 (10)	60 (45)	
Token Economy									
135 Kirigin B A & W (82)	1	1	1	2	2	21	27 (38)	47 (30)	(girls)
136	1	1	1	2	2	12	57 (102)	73 (22)	(boys)
137 Davidson & W (77)	1	1	1	2	2	-26*	?? (??)	?? (??)	
138 Ross & M (77)	1	1	1	2	2	-23	60 (45)	33 (15)	
139 Phillips P F & W (73)	2	1	1	2	2	36*	18 (16)	53 (15)	Ach Place vs Inst
140	2	1	1	2	2	37*	18 (16)	54 (13)	Ach Place vs Prob
Individual/Group Counselling									
141 Persons (67)	2	1	2	2	2	29*	32 (41)	61 (41)	Ind + Group
Appropriately Matched According to Risk or Responsivity/Need Systems									
142 Sorenson (78)	1	1	2	1NSD	1	06	25 (44)	31 (26)	
143 Byles & M (79)	1	1	2	1SD	1	27*	68 (60)	92 (37)	
144 Gruher (79)	1	1	2	1SD	1	07	56 (16)	63 (30)	
145 Quay & L (77)	1	1	2	1NSD	1	23*	36 (164)	65 (40)	
146 O'Donnell L & F (79)	1	1	2	1NSD	2	20	62 (37)	81 (21)	(boys)
147	1	1	2	1NSD	2	08	38 (13)	50 (2)	(girls)
148 Barkwell (76)	1	1	2	1PPC	1	35*	56 (16)	88 (16)	
149	1	1	2	1PPC	1	20	56 (16)	75 (16)	
150 Baird H & B (79)	2	2	2	1PPC	1	17*	16 (184)	30 (184)	
151 Andrews K M & R (86)	2	2	2	1PPC	1	31*	33 (54)	75 (12)	Para-prof prog
152 Andrews & K (80)	2	2	2	1PPC	1	82*	0 (11)	80 (10)	(Hi Emp & Risk)
153 Grant & G (59)	2	2	2	2	1	09	29 (135)	38 (141)	(High Maturity)
154 Andrews & K (80)	2	2	2	1PPC	1	27*	31 (34)	58 (23)	Para-prof prog

* $p < .05$ (Chi square)

Note: The value labels for codes "1" and "2" are as follows: Sample of Studies (Whitehead & Lab, Sample 2), Justice System (juvenile, adult), Quality of Research Design (weaker, stronger), Behavioral Intervention (no, yes) and Setting (community, institutional/residential). The letters beside code "1" for Setting refer to different types of community settings (NSD: nonsystem diversion; SD: system diversion; PPC: probation, parole, community).

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