

Participation in Victim-Offender Mediation and the Prevalence of Subsequent Delinquent Behavior: A Meta-Analysis

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Objective: This article reports the results of a meta-analytic study of the relationship between participation in victim-offender mediation (VOM) and the prevalence of subsequent delinquent behavior. Method: Analyses were conducted with the results of 15 studies, conducted at 19 different sites, with a sample of 9,307 juveniles. Results: The results suggested that methodological factors explained all the significant variation across sites and studies in the magnitude of the difference between non-VOM and VOM groups in their reoffense prevalence. The odds of VOM participants were only about .70 as great as the odds of nonparticipants reoffending. Conclusion: The results support the efforts of social workers to advocate for, develop, and participate in VOM programs.

Keywords: *victim-offender mediation; victim-offender reconciliation; restorative justice; meta-analysis*

Recent times have seen the re-emergence of an ancient philosophy of justice referred to as “restorative justice.” In this philosophy a crime is viewed as an offense against a victim, and the emphasis is on resolving conflict, repairing harm to the victim, holding the offender accountable to the victim, and returning things as much as possible to the way they were before the offense occurred. The emphasis on punishment seen in the retributive justice model, the philosophy on which the current justice system in the United States is based, is replaced with an emphasis on personal accountability to the victim and a recognition of the harm done by the offender to the victim (Galaway, 1988; Umbreit, 2001; Zehr, 1990).

Victim-offender mediation (VOM) is the oldest and most widely practiced expression of restorative justice (Umbreit, 2001; Zehr, 1990). VOM programs most commonly involve the victims and perpetrators of juvenile property offenses and minor assaults, though there have been efforts to broaden the scope of VOM to include adult offenders and serious violent crimes (Flaten, 1996; Umbreit, 1994a). A recent survey found more than 300 VOM (also referred to as victim-offender reconciliation, or VORP) programs in the United States and more than

1,000 in Europe. In about 80% of VOM programs the mediator (usually a trained volunteer) meets initially with the victim(s) and the offender separately. Following these separate sessions, which help prepare the victim(s) and offender for subsequent dialogue, there is a mediation session that is the heart of VOM. The goal of the mediation is to create an environment that allows the parties to engage in a dialogue in which emotional and informational needs are met and in which a plan for the offender “to make things right,” as much as possible, is developed (Umbreit, 2001; Umbreit & Greenwood, 1999).

The development of empirically supported programs is a high priority in social work. A number of studies have compared the reoffense rates of VOM participants with those of nonparticipants (Umbreit, Coates, & Vos, 2001). A meta-analysis of this research could help shed light on the relationship between VOM participation and subsequent delinquent behavior. This article reports the results of a meta-analysis (Lipsey & Wilson, 2001) of the research on VOM participation and recidivism and focuses on three meta-analytic questions: (a) are the “VOM effects”—defined as the ratio of the odds of VOM participants reoffending to the odds of nonparticipants reoffending—homogeneous? and if not, (b) what univariate and multivariate relationships appear to exist

between explanatory variables and magnitude of VOM effects?; and finally, (c) within the best available group formation methodological base, does VOM participation appear to be associated with a lower likelihood of reoffense?

A major concern about meta-analysis is the so-called apples-and-oranges problem, a phrase referring to concerns about comparing studies of widely varying methodological quality. Two methods were used to address this problem. In the first, methodological characteristics of the included studies were used as explanatory variables so that the relationship between VOM effects and methodological quality was a matter of empirical investigation. In the second, studies with group formation methodology in the upper quintile in terms of methodological quality were included in a separate meta-analysis (Lipsey & Wilson, 2001).

METHOD

Inclusion Criteria

To be included in this meta-analysis a study had to have (a) focused exclusively on juveniles; (b) investigated the relationship between participation in VOM and the prevalence of subsequent delinquent behavior; and (c) employed a VOM group and at least one comparison group of juveniles who had not participated in VOM. These inclusion criteria allowed a focus on what the extant research tells us about the differences in prevalence of delinquent behavior between juveniles who participated in VOM and those who did not.

Selection of Studies

An extensive search was conducted for studies that met the inclusion criteria (Lipsey & Wilson, 2001). The search included a comprehensive exploration of electronic databases, of the World Wide Web, of reference lists and bibliographies; as well as person-to-person contacts with restorative justice researchers. This search identified 19 studies, 15 of which met the inclusion criteria. Four studies were not included because they did not use a non-VOM comparison group and/or included adults in their sample (Carr, 1998; Dignan, 1990; Roberts, 1998; Wynne, 1996). The final sample included 15 studies conducted at 19 sites that focused on 19 VOM programs, involving a total of 9,307 juveniles (includes the following studies that were not cited in the text: Carr & Nelson, 2000; Cosden, Casas, & Wolfe, 1999; Dick, 1999; Hitao,

1999; Lee, 1999; Nugent, Umbreit, & Williams-Hayes, 2003; Roy, 1993; Stone, 2000; Stone, Helms, & Edgeworth, 1998; URSA Institute, 1993). These studies included six published in books and/or peer-reviewed journals, one unpublished master's thesis, and eight program evaluations.

Outcome Measure

The effect size of focus was the "VOM effect," defined as the ratio of the odds of VOM participants reoffending to the odds of nonparticipants reoffending.

Definitions of Reoffense

Reoffense was defined in the Umbreit (1994b; Umbreit & Coates, 1993), Nugent & Paddock (1996), and Wiinamaki (1997) studies as any subsequent offense for which a youth was adjudicated guilty. Similarly, in the Schneider (1990) study, a reoffense was any subsequent offense that was neither dismissed for lack of evidence nor for which the juvenile was exonerated. In contrast, reoffense was defined more broadly in the remaining studies as any official contact with a law enforcement agency; as any subsequent court contact; or as any record of a rearrest.

Explanatory and Moderating Variables

One important and plausible explanation for differences in reoffense rates between VOM and non-VOM participants was the creation of initially nonequivalent groups. An important goal in the meta-analysis was to represent methodological differences in the ways VOM and non-VOM groups were formed and to use this information to identify the best available studies in terms of group formation methodology. To this end, 12 dichotomously scored items (see Table 1) were created, each indicating the presence/absence of a methodological feature (such as random assignment, and so on) related to the creation of initially equivalent groups, and each study (and the evaluation done at each site) was rated using these items. Total scores on this Group Formation Methodology Scale could range from 0 to 12, with higher scores indicative of studies more likely to have created initially equivalent groups, and vice versa.

Two raters independently rated the group formation methodology (GFM) used at each site, using this scale. The mean item score by item score interrater agreement was 91.7% (range 75% to 100%). Generalizability theory (or G-theory) methods were used to estimate a generaliz-

TABLE 1: Items on Group Formation Methodology Scale

| | |
|----------------|---|
| Item 1. | Juveniles randomly assigned to groups. |
| Items 2 to 10. | Youths in VOM and non-VOM groups were matched via (a) random assignment or (b) direct matching by researchers, or (c) statistical tests revealed that the two groups were equivalent in terms of the following variables within limits of sampling variability: age, gender, ethnicity, number of prior offenses, type of original offense, severity of prior offenses, family type, number of years of formal education, and number of siblings in family. |
| Item 11. | Youths were placed into the non-VOM group in an unbiased manner. |
| Item 12. | Youths were placed into the VOM group in an unbiased manner. |

NOTE: VOM = victim-offender mediation.

ability coefficient for generalizing from the means of the two raters averaged item ratings to the means that would be obtained by having all raters in a universe of raters rate each site using all items in a universe of group formation methodology items (Brennan, 1983). The resulting coefficient was .92. Consistent with G-theory, in the analyses below the mean scores across the averaged (across the two raters) item scores for each site were used as the GFM scores, producing scores ranging from 0 to 1, with higher scores indicative of better quality GFM, and vice versa. These scores were used as an independent variable in analyses, and to identify sites with GFM scores in the top quintile (i.e., top 20%).

Four other variables were used to represent methodological factors. Duration of follow-up was defined as the duration in months that youths were monitored for reoffense. Longer follow-up periods may be associated with larger reoffense rates and with smaller VOM effects (Niemeyer & Shichor, 1996). The type of sample was a dichotomous variable that indicated whether the sample of juveniles comprised only property offenders (type of sample = 0) or property and violent offenders (type of sample = 1). A second dichotomous sampling variable was titled "all VOM referrals" and was scored 1 for those studies in which the sample of juveniles was all VOM referrals, and 0 otherwise. In some studies, all involved juveniles had been selected for VOM participation by juvenile court and/or VOM program staff, and the non-VOM group comprised of those referred juveniles who did not participate, potentially producing a biased sample. A dichotomous variable was used to identify the definition of reoffense (0 = narrow definition, 1 = broader definition) because the definition used might affect the reoffense rates observed at a study site. The broader definitions used in some of the studies may have led to larger observed reoffense rates than the more narrow defini-

tions, used in the Nugent & Paddock, Wiinamaki, Umbreit, and Schneider studies, because more juveniles may be charged with offenses than are ultimately adjudicated guilty.

One variable, symbolized by the Greek letter δ and defined as the non-VOM group's percentage of violent offenders minus the VOM group's percentage, represented an outcome of the GFM used at a study site. Efforts were made to reconstruct the between-group differences in percentage of violent offenders at each study site. This variable could not be reconstructed for two of the studies (13% of studies; 10.5% of sites). Following Gibson (1999), expectation maximization (EM) procedures were used to estimate these missing values, and a dummy variable (0 = study/site had no missing value, 1 = study/site had missing value) used to indicate missing data on this variable. Univariate and multivariate analyses gave no evidence of a relationship between missing data on δ and magnitude of VOM effects.

There were two nonmethodological explanatory variables. A dichotomous variable was used to identify the population of the county served by the VOM program (0 = population less than or equal to 100,000, 1 = population greater than 100,000). Juveniles in counties with larger populations may be at greater risk of reoffense because of greater access to peer groups and other environmental factors related to delinquent activity. Finally, a dichotomous variable (1 = published in peer-reviewed source, 0 = otherwise) was used to represent publication status of a study because it has been found that effect sizes in studies published in peer-reviewed journals can be different than those found in non-peer-reviewed sources (Lipsey & Wilson, 2001).

Data Analysis Methods

Correlational, binomial, and V-known hierarchical generalized linear model (HGLM) techniques (Raudenbush, Bryk, Cheong, & Congdon, 2000) were used to analyze effect sizes across sites. The binomial HGLM model is reminiscent of logistic regression and allowed the simultaneous estimation of two equations to explain variation in outcomes: one for the magnitude of VOM effects and one for the magnitude of non-VOM group's reoffense rates. Given the minimum sample size requirements for each equation of this type, as well as the principal focus on explaining variation in VOM effects, only the equation for modeling VOM effects was developed and results reported. However, the fully multivariate nature of estimation in the HGLM approach did take into account the relationship between VOM effects and non-VOM groups'

reoffense rates (Bryk & Raudenbush, 1992; Raudenbush et al., 2000).

Analytic Strategies

A fully unconditional HGLM binomial model (i.e., one with no predictors) for predicting VOM effects was fitted and a test of homogeneity conducted. If this test suggested heterogeneity, then a stepwise variable entry approach was used. The variable with the largest statistically significant chi-square statistic was placed into the model, then remaining variables added individually to this single variable model to determine the next variable with the largest statistically significant chi-square. The new variable with the largest statistically significant chi-square value was then added to the model, and this procedure continued until all significant variation in VOM effects was explained or until there were no remaining statistically significant explanatory variables.

A second strategy involved the simultaneous entry of all explanatory variables into a HGLM binomial model. This allowed the testing of each explanatory variable while controlling for all the other explanatory variables. A final approach assessed the relationship between VOM participation and subsequent delinquent behavior within the best available group formation methodology. The study sites that had GFM scores in the top quintile were used to represent VOM effects from extant studies with the most rigorous GFM and separate analyses conducted (Lipsey & Wilson, 2001).

Misspecification Tests

The possibility existed that the HGLM models for explaining variation in VOM effects created using the above methods would have biased parameter estimates because they would, by design, have no predictors for non-VOM groups' reoffense rates. Given the fully multivariate nature of HGLM procedures, the misspecification of the equation for non-VOM groups' reoffense rates may bias parameter estimates in the equation for explaining VOM effects (Bryk & Raudenbush, 1992). Because of this possibility, the sensitivity of the model for VOM effects to the possible misspecification of the equation for non-VOM groups' reoffense rates was assessed using procedures described by Bryk & Raudenbush (1992).

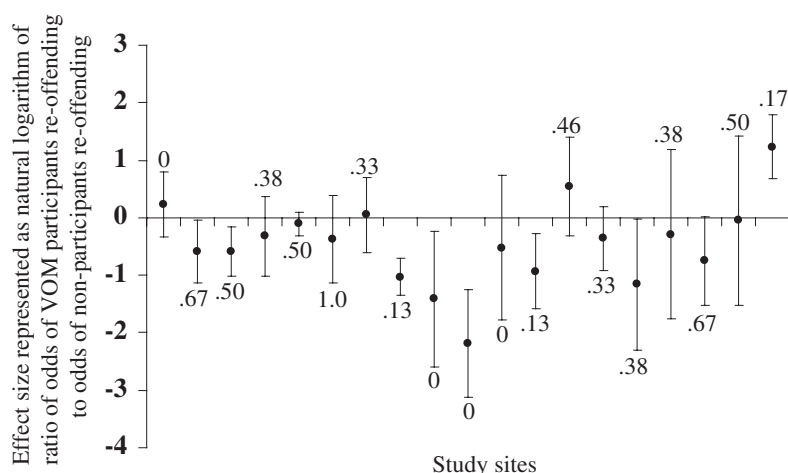


Figure 1: Graphic representation of VOM effects by site, with VOM effect defined as the natural logarithm of the ratio of the odds of VOM participants reoffending to the odds of nonparticipants reoffending. A negative VOM effect indicates that VOM participants reoffended at a lower rate than did nonparticipants. Vertical bars indicate approximate 95% confidence intervals for effect sizes. Number by each effect size and confidence interval is the GFM score for the group formation methodology used at the study site.

RESULTS

Sample Sizes and Sample Characteristics

The 15 studies, and 19 sites, gave a combined sample of 9,307 juveniles. The characteristics of the samples in each of these studies were discussed in the cited studies, and these descriptions are not repeated here. Figure 1 shows the effect sizes, represented as the natural log of the ratio of the odds of VOM participants reoffending to the odds of nonparticipants reoffending (Lipsey & Wilson, 2001), along with approximate 95% confidence intervals. A negative effect size represents the outcome in which VOM participants reoffended at lower rates than nonparticipants, and 95% confidence intervals that fail to touch the horizontal axis indicate statistically significant outcomes. Also shown in this figure are the GFM scores (shown as the numbers by each effect size and associated confidence interval) for the GFM used in the study conducted at each of the included sites.

GFM Scores

The mean GFM score was .34 ($SD = .27$; range 0 to 1.0). The mean GFM score for top quintile sites was .64

TABLE 2: Correlations Between VOM Effects, non-VOM Groups' Reoffense Rates, and Explanatory Variables

| | Effect | Time | δ | Def | Size | Sample | All VOM | Score | Missing | Pub |
|----------|--------|------|----------|-------|------|--------|---------|-------|---------|------|
| Time | .03 | | | | | | | | | |
| δ | -.77* | .16 | | | | | | | | |
| Def | .07 | .13 | -.05 | | | | | | | |
| Size | .26 | .32 | -.06 | .46* | | | | | | |
| Sample | -.09 | .21 | -.06 | .23 | .53* | | | | | |
| All VOM | -.21 | -.09 | .01 | .17 | -.38 | -.19 | | | | |
| Score | .15 | .26 | <.01 | -.70* | -.28 | -.35 | -.40 | | | |
| Missing | -.15 | -.02 | .08 | .29 | .20 | -.09 | .44 | -.36 | | |
| Pub | .10 | .12 | -.01 | -.81* | -.33 | -.29 | -.04 | .55* | -.36 | |
| Non-VOM | -.52* | .36 | .41 | -.04 | -.18 | .16 | .05 | .33 | .01 | -.15 |

NOTE: VOM = victim-offender mediation; effect = VOM effect size; time = duration of follow-up; δ = difference between non-VOM and VOM groups in percentage of violent offenders; def = definition of reoffense; size = population of county served by VOM program; sample = type of sample; all VOM = all VOM referrals in sample; score = score on Group Formation Methodology (GFM) Scale; missing = missing data on δ ; pub = publication status of study; non-VOM = reoffense rate in non-VOM group.

* indicates correlation statistically significant at .05 level (two-tailed)

(median = .59), with a range from .5 to 1.0 ($SD = .2$). Within this group of top quintile studies, 5 of 6 (83.3%) used the narrow definition of reoffense; 5 of 6 (83.3%) appeared in peer-reviewed sources; 4 of 6 (66.7%) used samples containing only property offenders; 4 of 6 (66.7%) studied VOM programs serving counties with a population less than 100,000; and 3 of 6 (50%) used samples containing only VOM-referred juveniles. The mean duration of follow-up was 18.8 months (range 12 to 35); the mean VOM percentage of reoffenders minus non-VOM percentage was -8.4 ($SD = 5.4$; range -15 to -1.2), whereas the mean percentage of reoffenders in the non-VOM groups was 39.2 ($SD = 12.0$; range 31.3 to 63.4).

In contrast, the mean GFM score in the lower 80% of GFM scores was .21 ($SD = .18$), with a range from 0 to .46. Within this group of studies with GFM scores in the lower 80%, 10 of 13 (76.9%) used the broader definition of reoffense; 5 of 13 (38.5%) appeared in peer-reviewed sources; 3 of 13 (23.1%) used samples containing only property offenders; 1 of 13 (7.7%) studied VOM programs serving counties with a population fewer than 100,000; and 4 of 13 (30.8%) used samples containing only VOM-referred juveniles. The mean duration of follow-up was 13.8 months (range 6 to 24); the mean VOM percentage of reoffenders minus non-VOM percentage was -7.4 ($SD = 15.7$; range -32.2 to $+25.3$), whereas the mean percentage of reoffenders in the non-VOM groups was 29.3 ($SD = 9.3$; range 18.5 to 43.2).

Bivariate Correlations

The correlations between VOM effect size, represented as VOM percentage of reoffenders minus non-

VOM percentage, and explanatory variables (and non-VOM groups' reoffense proportions) are shown in Table 2. The only statistically significant correlation between VOM effects and an explanatory variable was that with δ , $r = -.77$; $t(17) = -4.98$, $p < .001$.

Relationship Between VOM Effect Variance and GFM Scores

A graphic plot of VOM effects versus the ranking of GFM scores suggested that variability in VOM effects decreased as the GFM increased in rigor (see Figure 2). The variance of VOM effects (defined as the natural log of the odds ratio) for sites with GFM scores in the lower 50% of GFM scores was .896, and for sites with GFM scores in the upper 50%, .232, a statistically significant difference, $F(10,9) = 3.86$, $p < .025$. A V-known HGLM analysis was conducted in which the dispersion of VOM effects, represented by

$$d_j = \ln(s_j) + \frac{1}{2(n_j - 1)}$$

(where d_j is the dispersion estimate of VOM effect sizes for quintile j , s_j is the estimated standard deviation of VOM effect sizes in quintile j , and n_j is the number of effect sizes in quintile j), was predicted from quintile of GFM scores (see Bryk & Raudenbush, 1992; Raudenbush et al., 2000). The results of this analysis were also indicative of decreasing variability in VOM effect sizes as quintile ranking of GFM score increased, $\chi^2(1) = 6.55$, $p < .015$. These results suggested that studies that used more methodologically sound group formation procedures led to results with lower across study variability in VOM effects.

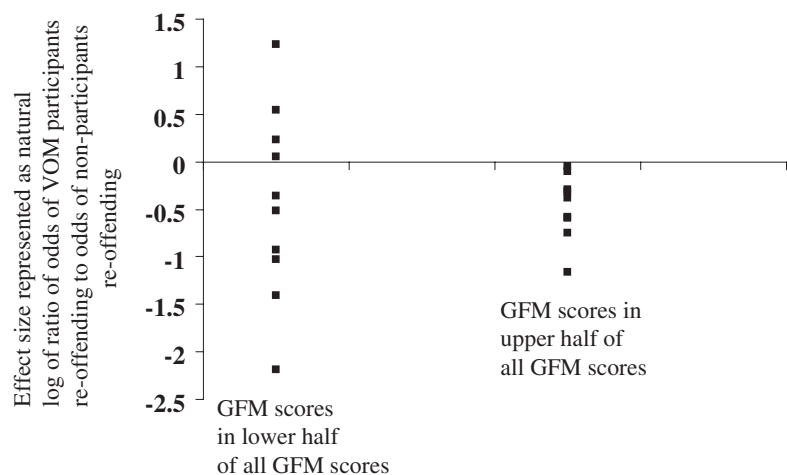


Figure 2: Graphic representation of dispersion of VOM effects, with VOM effect defined as the natural logarithm of the ratio of the odds of VOM participants reoffending to the odds of nonparticipants reoffending, as a function of which one half of the distribution of GFM scores a study site's GFM score was in.

Results for HGLM Binomial Model for All Data

Stepwise entry results. The results of fitting an unconditional HGLM binomial model to the data from all sites strongly suggested significant heterogeneity of VOM effects, estimated VOM effect parameter variance = .40, $\chi^2(18) = 97.5, p < .001$ (Bryk & Raudenbush, 1992). The first variable to enter into the VOM effect equation from the stepwise analysis was δ , $\chi^2(1) = 28.0, p < .0001$. Duration of follow-up was the next variable found to be a statistically significant predictor of VOM effects after controlling for δ , $\chi^2(1) = 4.24, p < .04$, and this variable accounted for all of the remaining significant variation in VOM effects, estimated residual VOM effect variance = .04, $\chi^2(16) = 25.3, p > .05$.

The results of the misspecification tests suggested that the standard errors for δ and duration of follow-up may have been slightly underestimated when the VOM effect equation was estimated without any predictors in the equation for non-VOM groups' reoffense rates, and ameliorative strategies described by Bryk and Raudenbush (1992) led to results differing minimally from those described immediately above. These results suggested that when groups were matched in terms of percentages of violent offenders (i.e., $\delta = 0$), the study results would show that the odds of a VOM participant reoffending at 6 months post-court involvement would be approximately .54 as great as the odds of nonparticipants reoffending;

.60 as great at 12 months; .68 as great at 18 months; .77 as great at 24 months; and .87 as great at 30 months post-court involvement. These results were consistent with Niemeyer & Shichor's (1996) speculation that VOM effects may decrease in magnitude across time.

Simultaneous entry results. The results from the HGLM model that contained all explanatory variables was statistically significant, $\chi^2(9) = 44.8, p < .00001$. Three variables were statistically significant predictors of VOM effect size, controlling for all other explanatory variables: δ , $\chi^2(1) = 7.2, p < .01$; definition of reoffense, $\chi^2(1) = 5.4, p < .02$; and GFM scores, $\chi^2(1) = 14.6, p < .001$. Although the results of the misspecification analysis suggested that standard errors for δ , duration of follow-up, and GFM scores may have been underestimated when no predictors were in the HGLM equation for non-VOM groups' reoffense rates, the results

using ameliorative strategies suggested by Bryk and Raudenbush (1992) were consistent with the foregoing. The results of this analysis implied that, when $\delta = 0$ and the GFM score approached a level putting it in the upper quintile of the top quintile of currently available VOM research GFM scores (i.e., a GFM score of .87 or greater), the expected odds of VOM participants reoffending would be approximately .73 as great as the odds of nonparticipants reoffending when the narrow definition of reoffense was used. None of the sites with GFM scores in the upper quintile of the top quintile of GFM scores used the broader definition of reoffense, so no estimate of the expected odds ratio obtained in a study with this level of GFM can be made without the risks inherent in extrapolating beyond the range of joint observations (Neter, Wasserman, & Kutner, 1983). However, the results of this analysis implied that, when $\delta = 0$ and the GFM score approached a level putting it in the lower quintile of the top quintile of currently available VOM research GFM scores, the expected odds of VOM participants reoffending were about the same (.95) as the odds of nonparticipants reoffending.

Synthesis of results. The stepwise and simultaneous entry strategies suggested four possible explanatory variables for explaining VOM effects: δ , duration of follow-up, definition of reoffense, and GFM scores. The results of analytic strategies identified δ as a predictor of VOM effects, however the two analytic strategies disagreed on

which of the other three explanatory variables were related to VOM effects. A second simultaneous HGLM binomial analysis was conducted in an effort to resolve the inconsistency in results between the two analytic approaches. In this simultaneous analysis, δ , duration of follow-up, definition of reoffense, and GFM scores were entered simultaneously into the HGLM binomial model. The results suggested that δ , $\chi^2(1) = 20.8, p < .0001$; definition of reoffense, $\chi^2(1) = 4.6, p < .05$; and GFM scores, $\chi^2(1) = 6.7, p < .01$, were statistically significant predictors of VOM effects, whereas duration of follow-up was not, $\chi^2(1) = .17, p > .50$. The results of a weighted least squares regression in which duration of follow-up was predicted from definition of reoffense and GFM scores showed that the multiple correlation between duration of follow-up and the combination of definition of reoffense and GFM scores was about .82, $F(2,16) = 16.0, p < .001$, results suggesting that in the stepwise analysis, duration of follow-up served as a proxy variable for the definition of reoffense–GFM score combination. A specific test of the six variables left out of the model that contained δ , definition of reoffense, and GFM scores produced statistically nonsignificant results, $\chi^2(6) = 7.76, p > .25$. These results all converged to suggest that δ , definition of reoffense, and GFM scores were most likely the explanatory variables that predicted VOM effects across the included studies, and that the relationship between duration of follow-up and VOM effects found in the stepwise analysis was a result of substantial collinearity between duration of follow-up and the combination of definition of reoffense and GFM scores.

Results for Binomial Model for Sites With GFM Scores in Upper Quintile

The results of fitting an unconditional HGLM binomial model to the data from the sites with GFM scores in the top quintile suggested homogeneity of VOM effect parameter variance, estimated VOM effect variance = .06, $\chi^2(5) = 10.4, p > .05$. These results implied that, within this context of best available evidence in terms of GFM, the odds of VOM participants reoffending were about .70 as great as the odds of nonparticipants reoffending (approximate 95% confidence interval .52 to .94).

Results from Alternate Analysis

Weighted least squares regression methods, described by Lipsey and Wilson (2001) were also used to analyze the VOM effect sizes. The results, not reported here

because of space limitations, were consistent with those discussed above. This consistency provided some evidence that the foregoing results were not artifacts of a single data analysis method.

DISCUSSION AND APPLICATION TO SOCIAL WORK PRACTICE

The most significant limitation in this meta-analysis is the small number of included studies, a limitation implying that the results may be sensitive to the addition of only a small number of new studies. One particular limitation was the inclusion of only one randomized experiment, a limitation affecting the ability of the meta-analysis to provide results from the strongest possible GFM base. Another limitation concerns the possibility that studies meeting the inclusion criteria were missed in the literature search and not included. Although the search was comprehensive, and there is no evidence that studies meeting the inclusion criteria were missed, the possibility nonetheless exists that studies were missed whose inclusion would have altered the results. Another limitation concerns the missing variables problem. This meta-analysis was a correlational study and, as such, vulnerable to the omission of explanatory variables that, had they been included in analyses, may have led to different results. These limitations all converge to suggest that the results be interpreted cautiously, provisionally, and tentatively.

Within this context of limitations, the results strongly suggested that the answer to the first research question was that VOM effects were not homogeneous, and that variability in VOM effects was related to GFM. Specifically, results suggested that the variability in outcomes across studies decreased as the quality of GFM increased. The results also suggested that the answer to the second research question was that GFM, δ , and definition of reoffense may be factors related to significant variation in VOM effects. Finally, the results suggested that the answer to the third meta-analytic question was that, based on the best available GFM, there is indeed evidence that VOM participation is associated with a lower likelihood of reoffense. Results suggested that VOM participants may be as much as 30% less likely to reoffend as non-participants. These results clearly support continued research on the relationship between VOM participation and subsequent delinquent behavior.

The results suggested that the magnitude of VOM effects depended on not only group formation methodology but also on how reoffense was defined. The broader

definition of reoffense used in some of the included studies implied a domain of events and activities that bring youths to the attention of law enforcement officers. This broad class of events and youth behaviors likely includes not only new delinquent behavior but also any of a number of events and situations not specifically related to new delinquent activity, such as being a known delinquent in an environment where a crime has occurred. A youth could easily come to the attention of law enforcement because he or she is a known delinquent and yet not have committed a new delinquent act subsequent to previous court involvement.

In contrast, the more narrow definition of reoffense implies a universe of indicators that includes not only events and behaviors that bring youths to the attention of law enforcement officials but also juvenile court activities the goals of which are, presumably, to validate accusations that a youth has engaged in a delinquent act. To the extent the juvenile court procedures accurately identify youths who have, and have not, committed delinquent acts, the more narrow definition of reoffense would appear to create a conceptual net more appropriate for identifying those who have engaged in delinquent behavior subsequent to VOM participation.

These considerations, if correct, imply that the above results suggested that (a) VOM participation may be associated with lower reoffense rates than nonparticipation and that (b) VOM participation may not be associated with a lower likelihood of new contacts with law enforcement agencies among youths who have a history of delinquent behavior. These speculations represent avenues for further future research on the relationship between VOM participation and subsequent delinquent behavior.

An interesting finding of this meta-analysis was that the explanatory variables identified as statistically significant predictors of VOM effects depended on the analytic strategy employed. The stepwise entry strategy led to findings somewhat different from those obtained when the simultaneous entry approach was used. This could be due to the fact that among the included studies, duration of follow-up was related to the combination of definition of reoffense and GFM score. Clearly, δ was an important predictor because it appeared as a statistically significant predictor regardless of the analytic strategy used. The chi-square statistic for duration of follow-up was statistically nonsignificant in the HGLM model that included all explanatory variables, as well as in the analysis in which duration of follow-up, δ , definition of reoffense, and GFM scores were simultaneously included in a HGLM binomial model, findings suggesting that definition of

reoffense and GFM scores may have been the variables related to VOM effects. However, the reader should interpret the findings related to duration of follow-up, and to definition of reoffense and GFM scores, cautiously and in part as heuristic guides for future research.

The results of the analyses of the VOM effects from sites with GFM scores in the upper quintile of all GFM scores provide an estimate of the magnitude of VOM effects within the context of the best GFM that currently exists in the research literature. These results suggested that the odds of VOM participants reoffending may be .70 as great as the odds of nonparticipants reoffending. Thus, the results tentatively suggested a relationship between VOM participation and reduced delinquent activity. None of the above results provided any evidence that VOM participation was associated with an increase in delinquent behavior. This should be good news to anyone concerned that participation in restorative justice programs, such as VOM, may not be harsh enough on offenders and therefore lead to increases in delinquent activity. The findings of this meta-analysis, together with the findings from research on outcomes for victims who participate in VOM programs (see Umbreit et al., 2001) lend considerable support to the efforts of social workers to develop and work within VOM programs. Social workers in juvenile justice settings can use these findings to support the development of VOM programs, to advocate for juvenile justice policies that emphasize restorative justice approaches, and to use the VOM process to serve the victims of and perpetrators of juvenile delinquent behavior. There have been calls for harsher treatment of juvenile offenders, with the promise that a "just desserts" philosophy will deter delinquent activities. Research has suggested that this notion is in error (Risler, Sweatman, & Nackerud, 1998), and the results of this meta-analysis suggest that restorative justice approaches may hold great promise for the development of juvenile justice practices that lead to more positive outcomes for juvenile offenders and for the general public, as well as for victims.

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