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Prospective Study of Violence Risk Reduction by a Mental Health Court

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Objective: Although many mental health courts (MHCs) have been established to reduce criminal justice involvement of persons with mental disorders, research has not kept pace with the widespread implementation of these courts. Whereas early MHCs were restricted to persons charged with non-violent misdemeanors, many MHCs now accept persons with more serious charges for whom ameliorating risk of violence is a greater concern. This study evaluated the relationship between MHC participation and risk of violence by using a prospective design. It was hypothesized that MHC participation would decrease the risk of violence during a one year follow-up compared with a matched comparison group.

Methods: The sample included 169 jail detainees with a mental disorder who either entered an MHC (N=88) or received treatment as usual (N=81). Seventy-two percent had been charged with felonies. Participants were interviewed at baseline and during a one-year follow up, and their arrest records were reviewed. Propensity-adjusted logistic

regression evaluated the relationship between MHC participation and risk of violence, controlling for potential confounders such as history of violence, demographic characteristics, baseline treatment motivation, and time at risk in the community.

Results: MHC participation was associated with reduction in risk of violence (odds ratio=.39). During follow-up, 25% of the MHC group perpetrated violence, compared with 42% of the treatment-as-usual group.

Conclusions: MHC participation can reduce the risk of violence among justice-involved persons with mental disorders. The findings support the conclusion that the MHC model can be extended beyond persons charged with nonviolent misdemeanors in a way that enhances public safety.

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Persons with mental disorders are vastly overrepresented in the criminal justice system (1–3). This represents an important and costly social problem, because justice-involved persons with mental disorders tend to stay in jail longer than others charged with similar crimes and cycle between the criminal justice, mental health, and substance abuse treatment systems (4–6). An increasingly widespread approach to reducing criminal justice involvement of persons with mental disorders is mental health courts (MHCs), which aim to reduce criminal behavior through judicially supervised treatment (7). The number of MHCs has grown rapidly, and upwards of 400 have been established across the United States (8). Research on the effectiveness of MHCs has not kept pace with their widespread implementation, and evaluation of the public safety outcomes of MHCs is a timely issue that requires further investigation.

Although MHCs vary across locales, they share a number of features, including a separate docket for persons with mental disorders, a designated judge (and usually designated prosecution and defense attorneys), and a nonadversarial team approach in which criminal justice and mental health

professionals share decision making (7). Participation in an MHC is voluntary. Participants agree to follow a judicially supervised treatment plan, with the expectation of a reduction in charges or sentencing. The MHC team aims to link participants to treatment and services to address each client's needs while protecting the public. Participants attend status hearings, in which the judge may apply various rewards and sanctions to encourage adherence to the treatment plan. Participants who maintain a sustained period of stability graduate from the MHC program (9).

MHCs were developed in part to reduce participants' involvement with the criminal justice system (10), and research on the extent to which MHCs achieve this goal is growing. Existing data suggest that MHC participation can reduce risk of criminal recidivism (11–16), although not all studies support that conclusion (17,18). Little research has investigated the effectiveness of MHCs specifically for reducing risk of violence, a gap in the literature that may be related to the fact that early MHCs typically were restricted to persons charged with nonviolent misdemeanors (9,17). Because the number of MHCs that include individuals with

histories of felony charges or violence is expanding (9), research is needed on whether courts that accept higher-risk clients can operate without compromising public safety.

One study directly examined the effectiveness of an MHC with higher-risk clients in reducing risk of violence by using a retrospective observational design. The study examined criminal justice outcomes of the San Francisco MHC (called the Behavioral Health Court) by using records from local court and jail systems (13). Of the 172 individuals who entered the court during the study, 63% had been charged with felony offenses. During follow-up, MHC participants had a longer time without arrests for new charges for violent crimes compared with a treatment-as-usual group. These findings suggest that MHCs can be effective in reducing the risk of violence.

Further research using a prospective design is needed to support firmer conclusions about the relationship between MHC participation and reduction in risk of violence. In addition, previous research on MHCs with higher-risk clients relied exclusively on official records to measure violence. Arrest records can underestimate this outcome, because violence is often not brought to the attention of the criminal justice system (19). Self-report provides a valuable additional source of information for measuring violence (20,21) that has not been included in prior research on MHC participation and risk of violence among MHCs that do not exclude individuals with histories of felony charges and violence.

To advance this literature, this study evaluated an MHC in which a substantial proportion of participants had histories of violence or felony charges. The study used a prospective design and included self-reported acts of violence as well as arrest records. We hypothesized that MHC participants would demonstrate a decreased risk of violence during a one-year follow-up period compared with a matched group of justice-involved persons with mental disorders receiving treatment as usual.

METHODS

Study participants were recruited between November 22, 2005, and January 27, 2008, at the San Francisco site of the MacArthur Mental Health Court Study, a multisite study of the effectiveness of MHCs (14,22). The treatment group consisted of newly enrolled MHC participants. MHC staff reported on a weekly basis to the research team regarding the gender, age, criminal charges, race-ethnicity, and diagnoses of enrollees. The comparison, or treatment-as-usual, group comprised similar individuals who were eligible for the MHC but who were never referred into or rejected from the MHC. The treatment-as-usual group consisted of newly booked jail detainees who were identified by staff of jail psychiatric services and who were matched as closely as possible to the MHC enrollees, first on gender and criminal charges and then on race-ethnicity, age, and diagnosis. The study included a baseline-enrollment interview and follow-

up interviews at six and 12 months. A total of 231 individuals completed all pertinent sections of the baseline interview. [An additional 14 individuals had baseline data for all study variables except treatment motivation. Subsidiary analyses that included these individuals showed essentially the same relationship between MHC participation and risk of violence as that reported below.]

As in most longitudinal studies, some participants were lost to follow-up. To maximize the sample size, 169 (73%) participants who completed at least one follow-up interview were included in the final study group. Follow-up interview data were available for a larger proportion of MHC participants (86%, $N=88$ of 102) than treatment-as-usual participants (63%, $N=81$ of 129) ($\chi^2=15.9$, $df=1$, $p<.01$). Pearson's chi square test and t tests showed no significant differences between those with and without follow-up data on age, gender, race-ethnicity, or history of violence at baseline.

Relevant institutional review boards approved the study procedures. After a complete description of the study to participants, written informed consent was obtained. Assessments were completed during an hour-long structured clinical interview conducted by trained interviewers. Participants were compensated for their participation (\$20 for the baseline interview, and \$25 for follow-up interviews).

The final sample consisted of 169 adults who had both baseline and follow-up data. A total of 125 (74%) were men, and 44 (26%) were women. The mean \pm SD age was 38.6 ± 10.5 years, with a range of 19 to 63 years. A total of 122 (72%) had a recent history of felony charges. The most common diagnoses were mood disorders ($N=86$, 51%), schizophrenia ($N=64$, 38%), and anxiety disorders ($N=12$, 7%) (some participants had more than one diagnosis). A co-occurring diagnosis of a substance use disorder was present for 153 (91%) participants.

Half of the 169 participants ($N=88$) enrolled in the MHC, of whom 66 (75%) were men and 37 (42%) were white; the mean \pm SD age of the MHC group was 38.0 ± 10.8 years. In the MHC group, 63 (72%) had a recent felony charge and 53 (60%) had a recent history of violence at baseline.

The treatment-as-usual group included 81 adults, of whom 59 (73%) were men and 32 (40%) were white; the mean \pm SD age was 39.2 ± 10.3 years. In this group, 59 (73%) had a recent felony charge and 43 (53%) had a recent history of violence at baseline. The group did not significantly differ from the MHC group on gender, age, race-ethnicity, or the type of index offense. The two groups differed from each other in terms of diagnosis; a larger proportion of MHC participants had a diagnosis of schizophrenia, and a larger proportion of those in the treatment-as-usual group had a diagnosis of depression.

The analysis was conducted under the intent-to-treat principle whereby all MHC participants with follow-up data ($N=88$) were included in the analyses, regardless of whether they successfully completed the program. Twelve months after entry into the MHC, 30 (34%) of the MHC participants were still enrolled, 28 (32%) had graduated, 23 (26%) had

been terminated by the court (for example, because of new charges or hospitalization), and seven (8%) had opted out of the MHC (outcome data were unavailable for one participant). [Some of the individuals who participated in this study also participated in another study [23], which did not evaluate the outcomes of the MHC.]

Measures

Violence history. We used both self-report and criminal justice records to measure history of violence in the six months before the baseline assessment. First, a modified version of the physical assault scale from the Revised Conflict Tactics Scale (24,25) was used to assess whether participants had physically harmed, sexually assaulted, or threatened or used a weapon against another person in the six months before the baseline interview. We selected this definition of violence, because it has been thoroughly studied in previous research on violence risk (25,26) and describes serious forms of violence that are most likely to cause harm to others. Of the 169 study participants, 57 (34%) reported a recent history of violence. Second, we accessed arrest records from Federal Bureau of Investigation reports and local criminal justice agencies and coded them as violent or not by using a method comparable to that used for the self-report data. Arrests for physically harming another person, sexual assault, and use of a weapon were coded as violent (for example, murder or manslaughter, aggravated battery, assault with a weapon, sexual assault, and robbery). Of the 169 participants, 38% (N=64) had been arrested for a violent offense. A composite recent violence variable was created and coded dichotomously as the presence (coded as 1 if either the self-report or arrest records indicated recent violence) or absence (coded as 0) of a history of recent violence at the baseline assessment. On the basis of this definition, 57% (N=96) of the sample had perpetrated violence in the six months before the baseline interview.

Violence during follow-up. We used the same self-report and objective sources of arrest information to measure violence during the one-year follow-up. At the six-month and 12-month follow-up interviews, participants were asked whether they had engaged in violent acts during the previous six months on the basis of the modified version of the physical assault scale from the Revised Conflict Tactics Scale (24,25), as described above. Approximately 20% of the sample (N=33) reported violent acts during the one-year follow-up. Arrest records showed that 20% (N=34) were arrested for a violent charge during the 12-month follow-up. A composite variable for violence during follow-up was created by combining the information from the self-report and arrest records. Violence was coded as present if either self-report or arrest records indicated a violent act during the 12-month follow-up.

Treatment motivation. At baseline, study participants completed the Treatment Motivation Questionnaire (27),

adapted for persons with mental illness (28), to assess motivation to enter and participate in treatment, including both internal reasons (for example, interest in getting help) and external reasons (for example, feels under pressure to participate).

Data Analytic Approach

Adjustment for selection bias. Efforts were made to closely match the MHC and treatment-as-usual groups. However, because participants were not randomly assigned to the two groups, analyses were adjusted for possible selection bias by using a propensity score approach adapted from Rosenbaum and Rubin (29). The propensity score refers to an individual's probability of being selected for one treatment condition over another, given a set of observed characteristics or covariates (for example, clinical, demographic, and criminal history variables). Inclusion of the propensity score can reduce confounds between treatment effects and pretreatment risk factors when groups are compared in an observational study (30).

To develop the propensity scores, we considered analyses performed on data across sites of the multisite MacArthur MHC Study (14) (including the present sample), which constructed a logistic regression model of assignment to an MHC or treatment as usual that considered numerous variables in the categories of demographic characteristics, personal characteristics, history of violence and trauma, substance use history, and criminal justice history. [Further information on development of propensity scores is available in an online supplement to this article.] Following those findings, we developed propensity scores in this study by constructing a logistic regression model of assignment to MHC or treatment as usual on the basis of gender, race-ethnicity, age, marital status, severity of psychiatric symptoms (Colorado Symptom Index [31]), diagnosis of depression, treatment received for a general medical problem, days using illegal drugs during the past 30 days, any history of psychiatric hospitalization, violence at the baseline interview, and age at first arrest. We included the resulting propensity scores in models comparing the MHC and treatment-as-usual groups to adjust for possible selection bias.

Statistical analysis. We used multivariate logistic regression analysis to examine whether MHC participation was associated with risk of violence during follow-up. MHC participation was entered as the explanatory variable, and covariates were included in the model to adjust for non-random assignment to treatment group (propensity score), variation in the duration of the follow-up period as assessed by self-report (that is, the six- or 12-month interview) across participants, demographic characteristics (age and gender), baseline level of violence (six-month history), and treatment motivation (internal and external) at baseline. Time at risk of violence in the community during follow-up, operationalized as nights in jail, was also included as a covariate,

because supplemental analyses indicated that MHC participants spent fewer nights in jail than those in usual treatment. Data were analyzed with IBM SPSS Statistics, version 20.0.

RESULTS

The proportion of individuals in the MHC group who engaged in violent acts was smaller than in the comparison group. Specifically, 25% of the 88 MHC participants (N=22) perpetrated violence in the follow-up year, compared with 42% of the 81 comparison group participants (N=34).

Table 1 shows the results of a logistic regression analysis predicting the likelihood that study participants would perpetrate violence during follow-up. As hypothesized, MHC participation was associated with a decreased likelihood of perpetrating violence in the follow-up year compared with treatment as usual (odds ratio [OR]=.39). Taking into account the covariates, the odds of perpetrating violence during follow-up among MHC participants was less than half the odds in the treatment-as-usual group. Of the covariates, a recent history of violence during the six months before the baseline interview increased the risk of violence during follow-up (OR=3.52).

DISCUSSION

The goal of this study was to evaluate whether participation in an MHC is associated with reduction in risk of violence among justice-involved persons with mental disorders. Compared with treatment as usual, participation in MHC was associated with a decreased risk of violence in the year after MHC entry in a model that took into account demographic characteristics, history of violence, baseline treatment motivation, time at risk in the community, and propensity score adjustment to account for nonrandom selection into the MHC. The risk of perpetrating violence during the follow-up year among MHC participants was less than half that of a matched comparison group who were processed through traditional court. These findings extend previous work (13) by providing prospective evidence that participation in an MHC can reduce the risk of violence among justice-involved individuals with mental illness.

Research on this topic is important for several reasons. First, although the association between serious mental illness and risk of violence is modest (26,32,33), a widely held belief among the general public is that violence is strongly associated with mental illness (34–36). Such attitudes may impede efforts to implement MHCs in specific jurisdictions. The results of this study may ameliorate such concerns. Furthermore, the findings have implications for policies about eligibility criteria for MHCs. Whereas early MHCs

TABLE 1. Logistic regression analysis of violence perpetration after participants' entry to mental health court (N=88) or to treatment as usual (N=81)^a

Variable	B	SE	Wald χ^2	OR	95% CI	p
Internal treatment motivation	.01	.02	.27	1.01	.97–1.06	ns
External treatment motivation	.00	.04	.01	1.00	.94–1.07	ns
Propensity score	-.17	.74	.05	.85	.20–3.59	ns
Length of follow-up period	-.01	.24	.00	.99	.63–1.57	ns
Nights in jail during follow-up	.00	.00	.33	1.00	.99–1.00	ns
Female (reference: male)	-.09	.41	.05	.92	.41–2.05	ns
Age	-.02	.02	1.53	.98	.95–1.01	ns
Violence 6 months before entry (reference: no violence 6 months before entry)	1.26	.39	10.50	3.52	1.64–7.52	.001
Mental health court participation (reference: treatment as usual)	-.94	.46	4.27	.39	.16–.95	.039

^aModel $\chi^2=21.53$, $df=9$, $p=.01$

were restricted to persons charged with nonviolent misdemeanors, many MHCs now accept persons charged with more serious offenses, who may be at greater risk of violence. The MHC that was the focus of this study included a substantial proportion of participants who had been charged with felony offenses or who had histories of violent behavior. The results support the conclusion that the MHC model can be extended beyond persons charged with non-violent misdemeanors in a way that enhances, rather than threatens, public safety.

Future research is needed on how MHCs reduce risk of violence. Possible mechanisms include linkage to services such as mental health treatment (for example, medications and case management), substance abuse treatment, stable housing and entitlements, and supported employment; reduction of association with antisocial peers; and facilitation of linkage to rehabilitation that enhances problem-solving skills, reduces antisocial attitudes, and addresses family dysfunction (10). Moreover, structural aspects of court processes have been hypothesized as possible mechanisms of MHC effectiveness (10,37,38); these include supervision, praise and admonishments from the judge, a nonadversarial team approach, and various rewards (for example, applause and certificates of achievement) and sanctions (for example, an increased level of supervision and monitoring by the court at status review hearings) to facilitate adherence to individualized court supervised treatment. Future research that identifies mechanisms of how and for whom MHCs reduce risk of violence could be valuable in refining the model.

Because this study focused on the outcomes of one MHC, the generalizability of conclusions based on the results may depend on the similarity of other MHCs to the San Francisco MHC. The mitigation of violence risk observed in this study may be more detectable in courts with eligibility criteria that allow for consideration of higher-risk arrestees, compared with MHCs that limit access to persons charged with non-violent misdemeanors. The practice of not excluding

potential participants with a history of felony offenses and previous violence is consistent with a trend in the “second generation” of MHCs to accept a broader array of justice-involved persons with mental disorders (7,9). Moreover, this practice is consistent with principles suggested by meta-analyses of the correctional literature that targeting intensive services to the needs of offenders at higher risk of recidivism yields more demonstrably effective interventions in reducing recidivism (39). MHCs considering inclusion of higher-risk individuals need to ensure availability of services to address their needs.

From one perspective, our use of an intent-to-treat approach could be considered a conservative estimate of the impact of MHC participation on risk of violence, because analyses included all MHC enrollees with follow-up data. We did not exclude individuals who opted out or were terminated from the program, and who therefore did not receive court-supervised treatment for the full year of follow-up. In our view, inclusion of individuals who did not successfully complete the MHC program enhances the study's internal validity, because exclusion of program “failures” from analyses could inflate estimates of program benefits.

A study limitation is that self-report data on violence during follow-up were not available for all participants, although data on violence from arrest records were. This gap was addressed by including as a covariate in analyses the duration of the follow-up period based on self-report.

Although matching and propensity analysis were employed to create a comparison group that would allow for specifying that MHC participation accounted for the observed reduction of risk of violence, the quasi-experimental study design cannot rule out the possibility that unobserved variables involved in selection into the MHC could have affected the results. Because entry into the MHC is voluntary, baseline differences in treatment motivation might explain differences in outcome between MHC and comparison group participants. However, in multivariate analyses, baseline treatment motivation did not account for the reduction in risk of violence that was explained by MHC participation.

CONCLUSIONS

This study provides direct prospective evidence that MHC participation can reduce risk of violence by justice-involved persons with mental disorders.

AUTHOR AND ARTICLE INFORMATION

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