Comparing GBMI and non-GBMI Female Prisoners in Michigan

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The guilty but mentally ill (GBMI) verdict was first adopted in Michigan in part to provide treatment for offenders suffering from mental illness. Currently, little is known of its impact among women prisoners. Therefore, the primary aim of this study was to explore if GBMI women ($n = 30$) spent more time on acute and residential treatment program (RTP) units in prison and/or had a higher number of violence tickets, compared with matched guilty mentally ill prisoners (non-GBMI, $n = 30$). The secondary aim was to characterize Axis I and Axis II disorders in GBMI female prisoners. Finally, we analyzed the data to find which Axis I and II disorders, if any, were significantly associated with violence tickets in the first year of incarceration and time in acute and RTP settings. Results showed there were no significant differences in time on acute units or the number of violence tickets between groups. Across both groups, those diagnosed with Borderline Personality Disorder had a higher number of violence tickets in the first year of prison ($p < .001$). The results supported the arbitrariness of the GBMI verdict in the female population and advocated for Dialectical Behavioural Therapy (DBT) programs in prisons.

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In 1975 the State of Michigan enacted a statute adding the guilty but mentally ill (GBMI) verdict. The enactment was in response to public perception and outcry that the preexisting "not guilty by reason of insanity" (NGRI) verdict exonerates potentially guilty defendants.[1] Initially adopted in the state of Michigan in 1975, versions of the statute now apply to 13 other states.[2]

While the definition of GBMI varies across states, its common features are that the trier of fact must find beyond a reasonable doubt that the defendant is guilty of the offense, that the defendant was mentally ill at the time of the offense, and that the defendant was not legally insane at the time of the offense.[2]

The GBMI verdict was designed to protect the public from criminal offenders, to reduce the number of NGRI acquittals, and to provide treatment for offenders suffering from mental illness.[1] However, it has been suggested that GBMI inmates are imprisoned for longer periods than their NGRI counterparts are hospitalized.[1,3]

In addition to prolonged sentence length, GBMI prisoners are not always guaranteed treatment. Some states make no provisions for mandatory treatment. For example, Georgia law states that prisoners found GBMI receive treatment only as financial resources permit.[4] In *People v. Marshall*, the Illinois Court of Appeals ruled failure to assure treatment for individuals found GBMI is not unconstitutional.[5] Many GBMI statutes, including Michigan's, leave decisions concerning treatment to the Department of Corrections and the Department of Mental Health. After a GBMI verdict, convicts must be examined by psychiatrists before beginning to serve the sentence to determine if treatment is needed. In most jurisdictions, however, this procedure is undertaken for all prisoners, guilty and GBMI.[6] The effect is that defendants found GBMI have the same access to treatment as those found guilty.[7] In Michigan, courts rejected the right to treatment claims in *People v. McLeod*.[8] These findings indicate that the provision of specialized treatment of GBMI offenders was not an explicit intention of GBMI statutes.[9] Mock juror studies suggest that the appearance of the GBMI verdict may decrease the number of appropriate NGRI

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verdicts.[10] This finding suggests that the GBMI verdict may indirectly reduce more robust mental health care for those with major mental illnesses.

Despite evidence that the GBMI verdict confers no greater likelihood for an inmate to receive mental health treatment, jurors may still believe the contrary.[11] One reason for jurors' likely false conclusion regarding mentally ill inmate treatment may be that most state courts (with the exception of states such as Michigan) do not inform jurors of verdict consequences, so as not to distract from their task of fact-finding.[12]

All of the studies cited above were completed in either exclusively male or predominantly male populations. Very little is known about the experience of female GBMI prisoners. This is a significant oversight as, according to the Bureau of Justice Statistics, the number of women imprisoned has increased and they account for 37 percent of violent crimes.[13]

With the exception of borderline personality disorder (BPD), an association between institutional violence and mental illness in female inmates has not been well established in the literature. However, clinical experience suggests that, for mentally ill females, violent acts may be a result of untreated mental illness. Therefore, the number of violence tickets received by a prisoner in her first year of incarceration was used both as an indicator of violent events and as a proxy for active symptoms of mental illness. Treatment was inferred by the time spent on acute and residential treatment program (RTP) settings within the prison.

The primary aim of this study was to compare GBMI and non-GBMI mentally ill females by their time spent on acute and RTP settings in a prison, and by the total violence tickets they received in their first year of incarceration. It was hypothesized there would be no difference between GBMI and non-GBMI women in terms of time on acute and RTP units, and in terms of the number of violence tickets received during their first year of incarceration. We controlled for age, race, date of offense, and type of violent crime.

The secondary aim was to characterize Axis I and Axis II disorders in GBMI female prisoners and compare them with non-GBMI mentally ill female prisoners. To date, Axis I and II mental illnesses are not characterized in GBMI female prisoners, nor have they been compared with non-GBMI controls.

Finally, although mental health professionals are frequently tasked with assessing violence risk, they are less accurate at predicting violence among mentally ill females.[14] Therefore, using the collected data, we were interested to find which Axis I and II disorders, if any, were significantly associated with violence tickets in the first year of incarceration. This information may help inform future studies examining risk factors for violence recidivism in female prison populations.

Methods

The study was conducted at Women's Huron Valley Corrections Center in Ypsilanti, Michigan, using a case-control design with previously collected administrative and clinical data. According to the Wayne State University Institutional Review Board, the study was not judged to be human research because no identifiable data were included in the analysis. Inclusion criteria for cases were female prisoners with violent offenses who were sentenced from 1995 to 2013, received a jury-decided verdict of GBMI, and had psychiatric diagnoses. Females sentenced prior to 1995 were not included because the electronic record was implemented in 1995. Violent offenses were defined as homicide, first-degree murder, second-degree murder, accomplice to murder, attempted homicide, manslaughter, abduction, assault, malicious wounding, felony assault, hurling missile, simple assault, abuse and cruelty, or child abuse.

The control group consisted of 30 non-GBMI, violent, and mentally ill female prisoners identified by one of the authors from a list of 823 prisoners in the prison's mental health system. The controls were matched for age (within 10 years), race, date of offense, and type of violent crime. Data were abstracted from the electronic medical record, presentencing investigation reports, and the admission current psychiatric evaluation.

Measures

Outcome measures included percentage of time spent in acute and RTP treatment units in the prison and the total number of violence tickets received in the first year of incarceration. Psychiatric measures included Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) Axis I and Axis II diagnoses, substance-abuse history (yes or no), type of substance, and use of substance at time of

Table 1 Demographics and Victim Characteristics in GBMI and Non-GBMI Mentally Ill Female Prisoners

	GBMI (n = 30), n (%)	Guilty (n = 30), n (%)	Total (n = 60), n (%)
Race			
Black	13 (43.3)	13 (43.3)	26 (43.3)
White	17 (56.7)	17 (56.7)	34 (56.7)
Marital Status*			
Divorced/separated	16 (53.5)	6 (20)	22 (36.7)
Married	4 (13.3)	8 (26.7)	12 (20)
Single	10 (13.3)	16 (53.3)	26 (43.3)
Education			
Less than high school	9 (30)	15 (50)	24 (40)
High school or equivalent	15 (50)	12 (40)	27 (45)
College	6 (20)	3 (10)	9 (15)
Employment			
Employed	3 (10)	5 (16.7)	8 (13.3)
Unemployed	27 (90)	25 (83.3)	52 (86.7)
Source of Income			
Job	2 (6.7)	4 (13.3)	6 (10)
SSI/SSD/family	16 (53.3)	6 (20)	22 (36.7)
None*	12 (40)	20 (66.7)	32 (53.3)
Victim Gender			
Male	16 (53.3)	16 (53.3)	32 (53.3)
Female	14 (46.7)	14 (46.7)	28 (46.7)
Victim Relationship			
Child	7 (23.3)	2 (6.7)	9 (15)
Spouse	6 (20)	4 (13.3)	10 (16.7)
Other family member	4 (13.3)	4 (13.3)	8 (13.3)
Friend/acquaintance/stranger	13 (43.4)	20 (66.7)	33 (55)

GBMI, guilty but mentally ill; SSI, Social Security insurance; SSD, Social Security disability.
* χ^2 test, $p < .05$.

offense (yes or no). Affective disorders included bipolar disorder, major depressive disorder, and mood disorder not otherwise specified. Psychotic disorders included schizophrenia, schizoaffective disorder, psychotic disorder not otherwise specified, and a mood disorder with psychotic features. Demographic measures included age, race, educational level, marital status, number of children, religious affiliation, total income, source of income, and employment status at the time of sentencing. Legal measures included instant offense, age at instant offense, length of sentence, method of instant offense (including weapons), age of first violent offense, total offenses, and total violent offenses.

Privacy

No prisoner identifying data were recorded or collected. All data were recorded in a Microsoft Excel spreadsheet and stored on a password-protected computer in the Emmet wing of the Women's Huron Valley Correctional Facility. The above data were considered unidentifiable non-human data.

Statistical Analysis

Cases were compared with controls using bivariate analysis of chi-square tests, t tests, and Mann-Whitney U tests. To control for confounders, logistic regression analysis was performed with results expressed as odds ratios and 95 percent confidence intervals.

Results

Demographic characteristics between the GBMI and non-GBMI groups revealed higher rates of divorce in the GBMI group (53%) compared with the non-GBMI group (20%) ($p < .05$). A higher percentage of the non-GBMI group did not hold jobs (66.7%) compared with the GBMI group (40%) ($p < .05$). Overall, 53 percent of the total sample had no source of income prior to incarceration (see Table 1).

There were no statistically significant differences between GBMI and non-GBMI inmates in terms of their time spent on acute and RTP units and in terms of the number of violence tickets received in the first year of prison (see Table 2). Total offenses were significantly higher in the non-GBMI group (mean = 9.57, SD = 7.19) compared with the

Table 2 Violence Tickets and Time on Acute/RTP Units in GBMI and Non-GBMI Mentally Ill Female Prisoners

	GBMI Mean Rank	Guilty Mean Rank
Total offenses*	24.67	36.33
Acute+RTP/12 months (%)	29.82	31.18
Violence tickets in first year	30.23	30.77

* Mann-Whitney, *t*-test, $p < .05$.

GBMI group (mean = 5.03, SD = 4.57) using both *t* test ($p = .005$) and Mann-Whitney *U* test ($p = .009$). However, there were no other differences between GBMI and non-GBMI groups.

In terms of the secondary aim of the study, there were no significant differences in Axis I diagnosis between the two groups (Table 3). However, the non-GBMI group consisted of a higher proportion of antisocial personality disorder (ASPD) (50%) when compared with the GBMI group (16.7%; $p = .006$). Within the substance-abuse disorders, there was a significantly higher proportion of cocaine dependence among non-GBMI prisoners (60%) compared with GBMI prisoners (33.3%; $p = .038$). There was also significantly higher substance use at the time of the crime in the GBMI group (36.7%) compared with the non-GBMI group (20%; $p = .037$). Across the two groups, marijuana (53.3%), alcohol (46.7%), and cocaine (46.7%) were the most frequently abused substances.

Logistic regression analysis was conducted to determine independent associations with a GBMI verdict. In this analysis, ASPD was not independently associated with GBMI. However, the high point estimate (odds ratio = 3.71) and wide confidence interval (.72–19.01) suggest it may be significantly associated in a larger sample size.

Table 3 Axis I and II Disorders in GBMI and Non-GBMI Mentally Ill Female Prisoners

	GBMI, *n* (%)	Guilty, *n* (%)	Total, *n* (%)
Axis I Disorders			
Schizophrenia	2 (6.7)	1 (3.3)	3 (5)
Schizoaffective disorder	5 (16.7)	6 (20)	11 (18.3)
Other psychotic disorder	4 (13.3)	1 (3.3)	5 (8.3)
Major Depressive disorder	4 (13.3)	7 (23.3)	11 (18.3)
Bipolar disorder	6 (20)	6 (20)	12 (20)
Other	12 (40)	7 (23.3)	19 (31.7)
Alcohol dependence	16 (53.3)	15 (50)	28 (46.7)
Cannabis dependence	15 (50)	17 (56.7)	32 (53.3)
Cocaine dependence*	10 (33.3)	18 (60)	28 (46.7)
LSD use	3 (10)	1 (3.3)	4 (6.7)
Opioid dependence	2 (6.7)	4 (13.3)	6 (10)
Substance abuse at time of crime*	11 (36.7)	6 (20)	12 (20)
Axis II Disorders			
Borderline personality disorder	10 (33.3)	4 (13.3)	14 (23.3)
Antisocial personality disorder*	5 (16.7)	15 (50)	20 (33.3)
Other	0 (0)	0 (0)	0 (0)

* χ^2 test, $p < .05$.

Finally, we examined associations between the presence or absence of selected Axis I and II disorders, time spent on acute or RTP units, and violence tickets in the first year of imprisonment (see Table 4). Significant associations were found between having a psychotic disorder and time on acute or RTP unit (Mann-Whitney *U* test, $p = .012$), and having BPD and number of violence tickets in the first year, (Mann-Whitney *U* test, $p < .001$).

Discussion

Our results did not show any significant differences between the GBMI and the non-GBMI groups, which argues against the utility of the GBMI verdict in the female prison population. One of the original goals of the GBMI verdict was to ensure treatment for mentally ill convicts. However, treatment is not mandated by courts in most statutes, and treatment depends on psychiatric evaluation by a prison psychiatrist.[4–7] Furthermore, the provision of specialized treatment of GBMI offenders was not an explicit intention of GBMI statutes.[9] In practice, mental health treatment in GBMI male prisoners is effectively the same as that in guilty prisoners.[15] This practical outcome found in predominantly male populations was repeated in the present study, which showed that female GBMI prisoners and non-GBMI prisoners spent equal amounts of time on acute treatment units.

The similarity in the number of violence tickets in the first year of incarceration between the two groups indicated that both groups were equally likely to commit a violent offense in prison soon after incarceration. This finding may indicate similar levels of acute mental illness between the two groups, further supporting the arbitrariness of the GBMI verdict in the female population. This conclusion should be viewed with skepticism because the association between institutional violence and mental illness in incarcerated females is not well established in the literature.

The secondary aim was to characterize Axis I and Axis II disorders in GBMI female prisoners, and to compare them with non-GBMI mentally ill female prisoners. Our results initially showed a higher rate

Table 4 Violence Tickets and Time on Acute/RTP Units in Axis I and II Disorders in the Combined GBMI and non-GBMI Mentally Ill Population

	Mean Rank		Mean	
	(+)Disorder	(−)Disorder	(+)Disorder	(−)Disorder
Affective Disorders*				
Acute+RTP/12 months, %	29.78	30.95	22.09	20.68
Violence tickets in first year	26.80	32.80	0.74	1.11
Psychotic Disorders†				
Acute+RTP/12 months, %‡	38.79	26.66	33.47	15.54
Violence tickets in first year	31.53	30.02	1.05	0.93
Borderline Personality Disorder				
Acute+RTP/12 months, %	28.32	31.16	18.83	21.95
Violence tickets in first year§	45.93	25.80	2.00	0.65
Antisocial Personality Disorder				
Acute+RTP/12 months, %	30.43	30.54	20.80	21.43
Violence tickets in first year	35.78	27.86	1.25	0.83

* Affective disorders include bipolar disorder, major depressive disorder, and mood disorders not otherwise specified.
† Psychotic disorders include schizophrenia, schizoaffective disorder, psychotic disorder not otherwise specified, and affective psychosis.
‡ χ^2 test, $p < .05$.
§ χ^2 test, $p < .001$.

of ASPD in the non-GBMI group. After logistic regression analysis, that association was no longer significant ($p = .116$). However, the high point estimate (odds ratio = 3.71) and wide confidence interval (.72–19.01) suggest that the association may be significant in a larger sample size. Furthermore, a higher total number of offenses was independently associated with being non-GBMI ($p = .022$). Those results suggest that ASPD, and in particular external manifestations of the disorder, such as overt criminality, may lead jurors to render a guilty verdict rather than a verdict that explicitly recognizes a mental illness. Studies on juror attitude and attribution support that conclusion.[16,17]

Finally, we examined associations between Axis I and II disorders, violence tickets in the first year of incarceration, and time on acute and RTP mental health units. We found that individuals with psychotic disorders spent twice the amount of time on mental health units as prisoners without psychotic disorders. It is possible that these individuals are more likely to decompensate than non-psychotic individuals, and that psychotic disorders in the violent female population are more likely to involve aggression or impaired impulse control.[18] Such decompensation would be more likely to warrant transfer to a mental health unit of the prison. In addition, BPD was associated with a higher number of violence tickets in the first year of prison. This is consistent with other research in the female mentally ill prisoner population.[19,20] In a study by Ferranti *et al.*,[19] 60 percent of female homicide offenders carried a primary diagnosis of BPD. In addition, Warren *et al.*[20] found BPD predicted institutional violence (odds ratio = 1.15, $p < .01$).

Limitations of this study include the lack of structured clinical interviews to obtain diagnoses, a small sample, size and data being from one state. Attorneys and triers of fact vary between counties, and GBMI verdict requirements vary between states, all of which preclude generalizing the results beyond Michigan. Another limitation previously mentioned was the lack of literature to support an association between mental illness and violence in incarcerated females. A further limitation was not including outpatient treatment in the measure of treatment (acute and RTP units). The absence of these data may limit the validity of time on acute and RTP treatment units as an indicator of mental health treatment in the prison. However, outpatient treatment was excluded from both groups, so one could still consider the results to characterize more intense mental health care. Another limitation was that both groups were not matched for psychiatric diagnosis. However, the only statistically significant difference between groups in terms of diagnosis was ASPD, and logistic regression analysis was performed to correct for differences between groups in substance use.

Future studies may look to replicate this result with a larger sample size and might examine attorney attitude given that 60% of GBMI verdicts in Michigan arise from plea bargains. The nature of psychosis (type of delusions/hallucinations), the specific reason for being placed on restricted units, treatment regi-

mens (antipsychotics, mood stabilizers, etc.), specific differences between psychotic violent female prisoners, and time on acute versus RTP units should also be examined further. Finally, violence tickets before and after Dialectical Behavioural Therapy (DBT) program implementation, and recidivism across U.S. prisons as a dependent variable with DBT programs as a categorical independent variable may also be examined in future studies. This would help inform the utility of wide-scale implementation of DBT programs across prisons.

Overall, our results support the hypothesis that, within the female population, the GBMI verdict in Michigan does not achieve its objective of increasing mental health treatment for prisoners compared with a guilty verdict.

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