

# Factors Affecting Length of Hospitalization in Persons Adjudicated Not Guilty by Reason of Insanity

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All states have legal rules whereby a person accused of a crime may be found "Not Guilty by Reason of Insanity" (NGRI), although these rules vary from state to state. All these rulings do, however, embody the same basic principle: that an individual may be acquitted by reason of insanity of a crime if his criminal behavior was a result of mental illness at the time the crime was committed.

A number of authors have written about the insanity defense (e.g., Goldstein, Rubin) and detailed the process whereby such a determination is made. Also, some experts have described the issues surrounding the question of release from hospitalization of an NGRI. For example, Lindman and McIntyre (1961) present two general criteria for release: (1) likelihood for recidivism, and (2) potential for dangerousness. They also point out that provision for coverage after release allows many persons to be released even though they do not meet these criteria. However, these authors do not discuss the concrete factors used to evaluate the individuals in terms of these two criteria, nor do they cite any supporting statistical information.

The only statistical study of NGRI's concerns an estimate of the size of the NGRI population. Scheidmandel and Kanno (1969) found that NGRI's accounted for 4% of mentally ill offenders admitted to hospitals or correctional institutions in 1967. Forty-two of 73 facilities polled reported 409 NGRI admissions for that year. Unfortunately, however, there have been no empirical studies delineating the characteristics of persons acquitted by reason of insanity nor of the factors affecting their length of hospitalization. The purpose of the present study is to investigate the demographic, historical and psychological test data which are descriptive of the NGRI population and to determine which variables are associated with length of hospitalization.

## Method

In Michigan, the case law for determining exculpability is a combination of the M'Naghten and Irresistible Impulse tests, and can be found in *People v. Durfee* (1884). It reads: "If, by reason of disease, the defendant was not capable of knowing he was doing wrong in the particular act, or if he had not the power to resist the impulse to do the act by reason of disease of insanity, that would be an unsound mind."

The study includes all individuals acquitted by reason of insanity who were hospitalized at the time the Center was institutionalized (1967) and those committed subsequent to the Center's opening up to October 1, 1972 ( $N = 167$ ). In order to avoid bias of the data, those defendants who escaped or died during hospitalization were not included in the study.

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Besides the usual demographic data (such as age, race, marital status and birthplace), such information as type of offense and previous convictions was recorded. Since the concept of criminal responsibility is directly related to mental illness, variables also added were diagnosis, past mental hospitalization and whether the defendant was evaluated for competency to stand trial. Hospitalization status served as the dependant variable, which includes whether the individual was in the hospital setting, on convalescent status, or fully discharged at the time of the study.

In addition to generating descriptive statistics, regression analyses to months of hospitalization and months on convalescent status were performed. Differences are analyzed not only in terms of hospitalization status, but also in terms of months in residence regardless of hospitalization status. This form of analysis avoids any bias by date of initial hospitalization, since over the years there has been a tendency toward shorter hospitalizations.

## Results

### *Description of the Population*

*Demographic Variables.* Demographic variables are presented in Table 1. Descriptively, the modal NGRI is a 37 year old white, single, semi or unskilled male with less

TABLE 1  
Demographic Data of Patients Adjudicated NGRI

<i>Variable</i>	<i>Frequency</i>	<i>Percent</i>
Age	37.06—Mean	12.1—Standard Deviation
Race		
White	113	67.7
Black	54	32.3
Total	167	
Sex		
Male	146	87.4
Female	21	12.6
Total	167	
Education		
Less than 8	50	31.3
Some H.S.	39	24.4
H.S. Graduate	45	28.1
Some college	20	12.5
College graduate	6	3.7
Total	160*	
Occupation		
Unemployed	56	38.4
Unskilled-semi-skilled	78	53.2
Skilled	12	8.2
Total	146*	
Marital Status		
Single	72	43.1
Married	49	29.3
Divorced or Separated	27	16.2

TABLE 1 continued

<i>Variable</i>	<i>Frequency</i>	<i>Percent</i>
Widowed	19	11.4
Total	167	
<hr/>		
Nativity		
Michigan	87	53.7
South	47	29.0
Other States	24	14.8
Other Countries	4	2.5
Total	162*	
<hr/>		
Geographical Referral Area		
Metropolitan Detroit	92	55.1
Out-State Urban	51	30.5
Rural	24	14.4
Total	167	

\* data missing was not available

than a high school education who was born locally (i.e., Michigan) and who was referred from the Detroit Metropolitan area.

*Offense and Mental Health History.* Table 2 presents the frequency of criminal charge for the NGRI population. As would be expected, serious crimes against persons are more often associated with an NGRI adjudication, and lesser crimes and crimes against property are under-represented. This under-representation is particularly striking when one considers the base rates of crime. For example, breaking and entering is approximately 45 times more frequent in Michigan than murder (Cooke, 1973). Data on other offense and mental health history are presented in Table 3. Roughly two-thirds of the NGRI's showed sufficient mental illness prior to trial to be evaluated for competency, and two-thirds of those evaluated were found incompetent and spent some time

TABLE 2  
Criminal Charges of Individuals Found NGRI

<i>Crime</i>	<i>Frequency</i>
Murder	(95)
Unspecified	39
Murder I	44
Murder II	11
Manslaughter	1
Armed Robbery	8
Assault with Intent to Murder	24
Other Non-sexual Assaults	10
Rape, Assault with Intent to Rape	9
Indecent Liberties & Indecent Exposure	4
Breaking and Entering	7
Kidnapping	4
Arson	3
Other	3
Total	167

**TABLE 3**  
Offense and Mental Health History of NGRI's (N = 167)

<i>Variable</i>	<i>Frequency</i>
Competency	
Not Evaluated	57
Competent	43
Incompetent	67
	167
Previous Mental Hospitalization	76
Previous Criminal Convictions	44

in a mental hospital before returning to trial. Approximately one-half of the population had a history of mental illness sufficient to warrant prior mental hospitalization, and about one-fourth had engaged in prior criminal activity.

*Factors Associated with the NGRI Determination.* Table 4 presents data relevant to the determination of NGRI. The diagnosis presented is not necessarily the one which was presented in the court proceedings. Rather it represents the diagnosis on admission to the mental health facility.

Although it may appear surprising that about a fourth of the NGRI's are diagnosed as suffering from a personality disorder, there are two reasons which may account for this finding. First, it may be due to a preference on the part of the diagnosing professional to base his diagnosis on present status rather than history of mental illness. Secondly, it may represent cases which were, for any of a variety of possible reasons, inappropriately found NGRI. A few patients in whom Forensic Center staff had special interest were placed at the Center; the rest were evenly divided as to a maximum setting versus a minimum security setting. In general, patients placed in a maximum security hospital are considered an escape risk and/or a danger to themselves or others. Most testimony

**TABLE 4**  
Factors Associated with Determination of NGRI

<i>Variable</i>	<i>Frequency</i>
Diagnosis	
Psychosis	114
OBS	7
Personality Disorder	41
Other	5
	167
Placement	
Forensic Center	26
Max. Sec. Hospital	71
Area Hospital	70
	167
Supporting Testimony	
Forensic Center—Defense	16
Forensic Center—Prosecution	8
Private	143
	167

concerning criminal responsibility was private, since the Forensic Center concentrates on competency and not responsibility determinations.

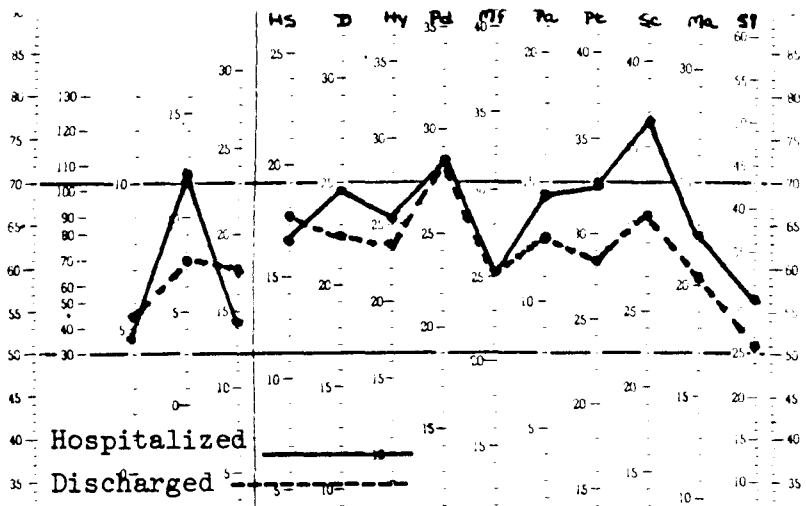
*Psychometric Data.* Intelligence testing results were available for only 16 of the NGRi patients, and because of the small number no definite conclusions can be drawn. However, for this group a Verbal I.Q. of 96.2, a Performance I.Q. of 92.6 and a Full Scale I.Q. of 93.1 was found, indicating that they are functioning in the lower end of the normal range. MMPI data gathered at time of admission was available for 62 patients and is presented in Figure I for 43 patients who were still hospitalized at the time of the study and 19 who had been discharged. Because of large variances, none of the differences between the two profiles reaches statistical significance, though the trend is for less psychotic pathology for the patients who were discharged by the cut-off date. The NGRi group as a whole shows a pattern similar to that observed in previous studies of mentally ill offenders by this author (Cooke, 1969, 1973); the most elevated scales are Schizophrenia, reflecting the psychopathology, and Psychopathic Deviate, reflecting the criminal acting-out pattern.

*Factors Related to Release of NGRi's*

*Methodological considerations.* Three methods were used to evaluate the factors associated with release of NGRi's. The first method involved determining the number of months spent in residence. One of the short-comings of this measure is the nature of the distribution of months in residence. While most patients fall into the 6 to 40 month range, there are a few who never were hospitalized at all and some who were in for extended periods (for example, one patient was hospitalized for 326 months). Depending on the variable under investigation, an extreme value in a cell with a small number could bias it significantly. In order to avoid the possibility of this bias, a second method was employed. Analysis was also performed using frequency counts of those hospitalized and discharged for each variable at the time of the study. This approach is uninfluenced by extreme values but has other drawbacks, the most important of which is that it is likely that there will be a trend for patients who have been hospitalized longer to be discharged at any given date. This difference which emerges, however, may be related to the actual need for long hospitalization, not to discharge. Therefore, a third approach was also used. A multiple regression formula for prediction of months in residency was

Figure I

MMPI Profiles for Hospitalized (N = 43) and Discharged (N = 19) NGRi's



derived so that the factors related to release and the directionality of these factors could be presented.

*Population results concerning release.* At the time of the study, 100 NGRI's remained hospitalized and 67 had been on convalescent status (CS) or discharged completely. The mean months in residence for the total population is 21.57 with a standard deviation of 45. The patients on CS had spent a mean of 19.88 months (SD = 13) on that status following release from the hospital. A further breakdown showed that six patients who were discharged completely, without being placed on CS, had been in residence 12.1 months (SD = 6), among which was one never hospitalized at all. Six who had been discharged from CS had spent an average of 24.5 months (SD = 14) on that status following release from the hospital.

*Evaluation of Factors Related to Release*

Table 5 presents the frequencies and mean months in residence for those patients who are presently in the hospital and those patients who have been released on CS or discharged completely.

TABLE 5  
Frequencies and Months in Residence for Demographic Variables

	<i>Hospitalization</i>		<i>Discharge</i>		<i>Total Mean</i>
	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	
<b>Race</b>					
White	65	23.77	48	27.33	25.28
Black	35	11.03	19	16.26	12.87
<b>Sex</b>					
Male	92	19.24	54	27.89	22.44
Female	8	22.63	13	9.23	14.33
<b>Education</b>					
Less than 8	30	30.48	20	20.45	26.54
Some H.S.	22	18.89	17	21.76	20.14
H.S. grad.	29	16.18	16	40.67	25.05
Some college	2	8.00	4	8.75	8.50
<b>Occupation</b>					
Unskilled	33	27.03	23	15.79	22.41
Semi-skilled	48	17.42	31	31.87	23.09
Skilled & Profess.	5	15.00	7	13.28	14.00
<b>Marital Status</b>					
Single	51	21.94	21	24.19	22.60
Married	25	16.60	24	25.04	20.73
Sep.-Div.	18	19.33	9	13.56	17.41
Widowed	8	16.50	11	22.62	18.67
<b>Nativity</b>					
Michigan	54	22.04	33	33.10	26.27
South	26	15.60	21	14.81	15.25
Other States	16	16.70	8	22.62	18.67
Other Countries	1	18.00	3	9.69	11.78
<b>Referral Areas</b>					
Metro. Detroit	53	14.19	39	27.10	19.66
Out-State Urban	30	17.30	21	17.52	17.39
Rural	17	41.76	7	28.00	31.75

An evaluation of demographic factors related to release reveals the following:

*Age.* This variable appears unrelated to release.

*Race.* The chi-square for race is not significant, but analysis of variance indicates that whites spend significantly longer in the hospital than blacks. Race does not, however, significantly enter into the regression equation.

*Sex.* The chi-square for sex is significant at  $p < .05$ , and analysis of variance for sex and for the interaction of sex and status is also significant. Females spend less time in the hospital than males and proportionately more females have been discharged. Sex is not a significant factor in the regression equation.

*Education.* The chi-square is not significant for educational level, but the analysis of variance is. Generally, the trend shows that the greater the educational level the less time spent in residence, but this is strikingly so when individuals with some college are compared with those who have less than college. Persons with some college training spend, on the average, 10.7 months in residence, while those with no college training spend an average of 23.35 months in residence. However, probably because of the limited range within which education is a significant variable, it is not significant in the regression equation.

*Occupation.* There is a non-significant trend for skilled and professional persons to spend fewer months in residence, and this is reflected as a significant weight in the regression equation.

*Marital status.* Chi-square is significant ( $p < .05$ ), indicating that married and widowed individuals are more often discharged while single, separated and divorced remain in the hospital group. The analysis of variance is not significant. Regression weight is significant, however, indicating that single status is associated with longer time in residence.

*Nativity.* The chi-square is not significant, but the analysis of variance is, and this indicates that persons referred from rural areas spend significantly longer in residence. The regression equation reveals that referral from the Metropolitan area of Detroit has a significant positive weight; this factor probably emerges, rather than the rural one, because of the low number of persons from the rural area.

*Criminal charge.* Frequency distribution, according to criminal charge, is presented in Table 6. Although chi-square is not significant, the analysis of variance is, indicating

TABLE 6  
Criminal Charge, Months in Residence and Hospitalization Status of NGRI's

	<i>Hospitalization</i>		<i>Discharge</i>		<i>Total Mean</i>
	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	
Murder	56	32.93	39	34.68	33.65
Armed Robbery	7	16.16	1	0*	14.14
Assault with Intent to Murder	13	13.09	11	31.50	21.46
Other Non-sex. Assaults	5	11.60	5	7.75	9.68
Rape, Assault w/Intent to Rape	7	21.28	2	11.00	17.89
Indecent Lib. Indecent Exposure	1	65.00	3	17.00	29.00
Breaking & Entering	5	19.66	2	7.00	16.04
Kidnapping	3	13.33	1	0*	10.00
Arson	1	17.00	2	6.50	10.00
Other	2	9.00	1	13.00	10.33

\* Convalescent status instead of hospitalization.

differences in time in residence as a function of crime. Patients acquitted for murder spend a considerably longer time in residence than patients acquitted for other crimes. Though patients hospitalized for charges of rape and assault with intent to rape spend less than the average time in residence, sexual crime unexplainably emerges as the single, most predictive variable in the regression formula.

*Competency to stand trial.* Table 7 presents the frequencies of those patients who were evaluated for competency, those who were previously hospitalized and those who were previously convicted.

The chi-square for competency is significant ( $p < .001$ ), indicating that individuals not receiving a competency evaluation are discharged and those who are evaluated, particularly the incompetent, are hospitalized. On the other hand, the analysis of variance is significant and indicates that persons not evaluated for competency spend the most time in residence and those evaluated and found competent spend more time in residence than those found incompetent. The regression weight for the "No Competency Evaluation" was significant in predicting that patients falling into this category are likely to spend more months in residence. The apparent contradiction between the chi-square and other indicators suggests that the absence of a competency evaluation may have been a factor accounting for longer hospitalization in the past more so than recently.

*Previous mental hospitalization.* The chi-square is not significant, but the analysis of variance and regression weight are significant. This indicates that those who have had previous hospitalization spend significantly more time in residence.

*Previous criminal convictions.* Neither the chi-square nor the analysis of variance is significant, although there is a trend, supported by a significant regression weight, for those with previous convictions to spend longer in residence. The high value in the "discharged" group suggests that previous criminal convictions may have been a more important variable in the past than it is presently.

*Diagnosis.* The data is presented in Table 8. There is a trend ( $p < .10$ ) toward a significant chi-square indicating that "Psychotics" are more often hospitalized. The analysis of variance is not significant. However, the diagnostic categories of "Personality

TABLE 7  
Frequencies and Months in Residence For  
Offense and Mental Health History Variables

	<i>Hospitalization</i>		<i>Discharge</i>		<i>Total Mean</i>
	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	
<b>Competency</b>					
<b>Evaluation</b>					
Not Evaluat.	21	45.76	37	30.19	35.83
Competent	30	16.40	13	23.19	18.49
Incompetent	49	10.83	17	11.82	11.12
<b>Previous Mental</b>					
<b>Hospitalization*</b>					
Yes	51	25.20	25	21.16	23.87
No	42	14.50	30	16.87	15.48
<b>Past Criminal</b>					
<b>Convictions*</b>					
Yes	28	15.75	16	29.31	20.68
No	70	16.39	47	17.24	16.73

\* Among the patients for whom this data is missing are those who have been hospitalized longest.



**TABLE 8**  
**Frequencies and Months in Residence for Factors**  
**Associated with the Determination of the NGRI**

	<i>Hospitalized</i>		<i>Discharged</i>		<i>Total Mean</i>
	<i>N</i>	<i>Mean</i>	<i>N</i>	<i>Mean</i>	
<b>Diagnosis</b>					
Psychosis	76	20.08	38	21.87	20.68
Organic Brain Syn.	3	12.67	4	13.00	12.86
Personality Disorder	19	24.47	22	16.63	20.27
Other	2	21.50	3	26.00	24.20
<b>Placement</b>					
Forensic Center	15	12.00	11	7.18	9.99
Area Hosp.	41	14.88	29	11.34	13.41
Maximum Sec.	44	27.07	27	44.93	33.86

Disorder" and "Other" have significant negative weights in the regression equation.

*Placement.* This data is also presented in Table 8. Although the chi-square and regression weight are not significant, the analysis of variance is indicating that those placed in a maximum security setting spend significantly longer in residence while those treated at the Forensic Center spend the least.

*Psychometric data.* As described earlier, there is a non-significant trend for hospitalized patients to be more in the pathological direction on all MMPI scales. In addition, the regression equation indicates that when the MMPI is given the number of months spent in residence is less. No MMPI scales had significant weights in the regression equation, but six scales showed non-significant trends: Higher scores on Depression and Recidivism were associated with more months in residence. Higher scores on Hysteria, Masculinity-Femininity, Escape and Positive Malingering were associated with fewer months in residence. Intelligence quotient differences between hospitalized and discharged were non-significant.

## Discussion

Quite a number of factors emerge which are significantly related to time in residence in a mental hospital after being found Not Guilty by Reason of Insanity. They include race, sex, education, occupation, marital status, nativity, area of referral, crime, past hospitalization, previous convictions, performance of a competency evaluation, and placement after being found NGRI.

Some of these factors have a great deal of face validity. For example, one would expect individuals with a nonpsychotic diagnosis who have no previous mental hospitalization nor previous criminal record, whose crime is less severe (those not charged with murder or sexual-aggressive crimes) and whose psychometric test data indicates a denial of pathology to be more likely to be released from the hospital in a shorter period of time. These factors, after all, not only relate to lack of mental illness, but also can be associated with little likelihood that the patient meets criteria, such as being a danger to himself or to society, for hospitalization.

However, other factors are not so easily explained. Specifically, married, educated, skilled individuals spend less time in residence. Perhaps it is because persons having a family and a job outside the hospital are considered more stable individuals who will have an easier re-entry into society. On the other hand, earlier release of individuals with these characteristics may represent a middle class bias on the part of mental health professionals.

The findings on the relationship between psychological testing and release raise similar issues. It was found that administration of the MMPI was associated with earlier release. This may be a manifestation of the interest taken in the case or of the fact that the testing on admission provided a more objective baseline against which to evaluate improvement. The particular scales related to time in residence are also interesting. Depression and recidivism are logical predictors of continued hospitalization, but the association of hysteria, escape and positive malingering with release suggests the possibility that it is the *denial* of pathology, rather than the *decrease* in pathology which is related to release. Further research on the utility of these scales in the prediction of dangerousness and recidivism is important.

Other factors, such as the fact that females and blacks spend less time in residence and the reasons for this, were not clear in the analysis of single factors. A two-way analysis was performed, and what emerges is that white males with aggressive crimes, particularly those placed in maximum security, spend significantly longer in residence, independent of a diagnosis of psychosis. (See Table 9.) Thus, it appears that estimated future dangerousness based on crime, not degree of mental disorder, is a primary factor in determining length of hospitalization and that whites and males are regarded as more dangerous than blacks or females. Other studies (e.g., Cooke, 1974) have found that black offenders are more often referred for competency evaluation, are more often found

TABLE 9  
Analyses of Combinations of Variables

	<i>N</i>	<i>Mean</i>
<b>Sex and Race</b>		
Black Male	51	14.08
Black Female	3	5.67
White Male	95	27.19
White Female	18	15.22
<b>Race and Diagnosis</b>		
Black Psychotic	40	12.38
White Psychotic	74	25.35
Black Other	14	17.86
White Other	39	25.15
<b>Crime and Race</b>		
Black—Aggressive	45	13.69
White—Aggressive	90	27.57
Black—Sex Aggressive	4	15.00
White—Sex Aggressive	3	17.33
Black Other	5	13.80
White Other	20	16.20
<b>Placement and Crime</b>		
Ionias Aggressive	54	37.63
Other Aggressive	81	13.15
Ionias Sex Aggressive	3	25.00
Other Sex Aggressive	4	9.25
Ionias Other	13	21.77
Other Other	12	9.17

incompetent and psychotic, and are more often placed in maximum security than are whites; thus it is somewhat surprising that NGRI blacks are hospitalized for a shorter period of time, and no resolution of this apparent contradiction is easily obtainable. It can only be said that further research is necessary to resolve this quandary.

What are the implications of these findings to the clinician who must make the dispositional judgment concerning NGRI's? First, he must direct himself to the two generally acknowledged criteria for release: likelihood of repeating an offense and dangerousness toward others. Certainly factors such as previous criminal history, the nature of the crime and mental status, which were shown by the present paper to be related to length of hospitalization, deserve to be weighted heavily. Second, he must question whether the less obvious factors revealed by this research should be weighed. For example, education, job level, and opportunity for interpersonal relationship *may* be factors which legitimately reduce dangerousness and likelihood of recidivism, though further follow-up research would be necessary to document this. Finally, he needs to examine the degree to which bias, whatever its source, is contributing to dispositional judgments.

### References

1. Cooke G: The court study unit: Patient characteristics and differences between patients judged competent and incompetent. *Journal of Clinical Psychology* 25:140-143, 1969
2. Cooke G, Johnston N, Pogany E: Factors affecting referral to determine competency to stand trial. *Am J Psychiat* 130:870-875, 1973
3. Cooke G, Pogany E, Johnston N: A comparison of Blacks and Whites committed for evaluation of competency to stand trial on criminal charges. *Journal of Psychiatry and Law*. Fall 1974, 319-337
4. Goldstein AS: *The Insanity Defense*. New Haven, Yale University Press, 1967
5. Lindman FT, McIntyre DM: *The Mentally Disabled and the Law*. Chicago, University of Chicago Press, 1961
6. Rubin S: *Psychiatry and Law*. Doblis Ferry, New York, Oceana Publications, 1965
7. Scheidmandel PL, Kanno CK: *The Mentally Ill Offender: A survey of treatment programs*. Washington, DC, American Psychiatric Association, 1969