BIOPSYCHOSOCIAL PREDICTORS OF LEGAL PROBLEMS AMONG PSYCHOTIC PERSONS: IMPLICATIONS FOR LAW ENFORCEMENT AND CRIMINAL JUSTICE

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Law enforcement officers, and the criminal justice system more generally, encounter psychotic individuals at a high rate due to legal infractions committed consciously or resulting from symptoms of the disorder. The purpose of this study was to determine whether a broad range of biopsychosocial symptoms predicted more severe legal problems. In addition, we studied whether a biopsychosocial model could predict the likelihood of demonstrating versus not displaying recent legal problems among psychotic persons (N=170). Although several symptoms were correlated with legal problem severity, multiple regression and logistic regression analyses revealed that family relationship problems were the primary predictor of psychotic individuals' legal problems. Implications for law enforcement and criminal justice are summarized.

Keywords: schizophrenia, legal, criminal, predictors

Schizophrenia is defined as a complex mixture of characteristic symptoms that have been present for at least one month, with some symptoms persisting for six months or longer. The syndrome causes marked impairments in a variety of important life domains (American Psychiatric Association [APA], 2013), and many psychotic individuals suffer from long-term and severe impairments in social functioning (Vila-Rodriguez, Ochoa, Autonell, Usall & Haro, 2011). These social impairments may include legal problems ranging from unintentional contact with the criminal justice system to psychosis-prompted harm to persons or property.

In a longitudinal study, Fazel, Langstrom, Hjern, Grann, and Lichtenstein (2009) concluded that schizophrenia was associated with a higher risk of crime. This finding could have criminal justice system implications not only for the individual, but also the broader community. For example, the cost of schizophrenia-related criminal justice services is approximately $2.64 billion annually (Ascher-Svanum, Nyhuis, Faries, Ball & Kinon, 2010). Other ramifications of legal problems resulting from ineffectively managed psychotic symptoms include an overburdened healthcare system, increased skepticism among those attempt-

ing to offer protection (i.e., police officers), and experiences related to psychological trauma among patients themselves through incarceration (e.g., becoming opportunist prisoners).

Researchers have shown that family relationship problems may be one risk factor for legal problems among psychotic persons. For example, being unmarried, belonging to a family with a lower economic status, or having no close family caregivers was shown to increase the likelihood of criminal involvement (Chen et al., 2010). There is also a higher risk that someone with a psychotic disorder will be involved with criminal activity if they lack family support and are homeless (Fischer, Shinn, Shrout & Tsemberis, 2008). Lacking significant relationships with others can limit the amount of resources available to psychotic persons during a critical time of need.

Interpersonal skill deficits also have been associated with legal problems in schizophrenia. Weiss et al. (2006) found that those with higher arrest rates scored lowest on emotion recognition tests, indicating the lack of recognition of interpersonal signals (especially fear and anger). Fullam and Dolan (2008) reported that interpersonal problems are a determining factor between violent and non-violent offenders with schizophrenia. They suggest that personality traits, such as antisocial attributes, may be the best predictor of involvement in the legal system.

Specific to medical care, Constantine, Robst, Andel, and Teague (2011) determined that individuals who received outpatient medical services were less likely to reoffend compared with individuals who received emergency room services. Perhaps persons with schizophrenia are better able to abide by the law if their physical needs are sufficiently met. Greenberg et al. (2011) found that substance abuse was a factor linked to a risk of criminal involvement. Similarly, Fazel et al. (2009) demonstrated that individuals with schizophrenia have increased risk of criminal behavior when there is substance abuse comorbidity. Schaub et al. (2011) concluded that individuals who had difficulty adapting to the disorder were more likely to display aggressive and troubling behaviors. These authors found a correlation between destructive behaviors and a lack of insight into psychosis. Similarly, Buckley et al. (2004) found a correlation between lack of insight into psychosis and violence.

Buckley et al. (2004) reported that more severe psychotic symptoms (e.g., delusions, hallucinations) were related to violent behavior. Those involved in the legal system experienced more symptoms of schizophrenia than those not involved with the law. Schwartz, Petersen, and Skaggs (2001) found a correlation between mania in persons with schizophrenia and homicidal ideation; therefore, it is reasonable to hypothesize that manic symptoms may be positively correlated with other criminal behaviors. This hypothesis is bolstered by literature showing that the risk of criminal involvement decreases as severity of depression increases (Heinrichs & Sam, 2010; Soyka, Graz & Bottlender, 2007). Relatedly, Posttraumatic Stress Disorder (PTSD) and related anxiety have been correlated with violent crimes (McCabe et al., 2012). PTSD paired with schizophrenia can increase psychotic episodes, thus making individuals more desperate and erratic (Rosenberg, Lu, Mueser, Jankowski & Cournos, 2007).

Although prior researchers have attempted to understand links between psychosis and legal problems, as shown above, past studies investigated isolated aspects of the phenomenon separately. The purpose of this study was to comprehensively investigate biopsychosocial factors related to legal problems among psychotic persons. Two research questions were posed in this study: (1) Do specific biopsychosocial symptoms predict severity of legal problems among persons with psychotic disorders; and (2) Can a biopsychosocial prediction model distinguish psychotic persons with significant legal problems versus those with no legal problems?

METHODOLOGY

Participants

Participants were 170 adults with psychotic disorders selected from a 12-county community mental health agency in a Southeastern state. Participants were diagnosed according to the *Diagnostic and Statistical Manual of Mental Disorders*, fourth edition (DSM-IV-TR; APA, 2000) with schizophrenia ($n = 127$), schizoaffective disorder ($n = 15$), schizophreniform disorder ($n = 2$), delusional disorder ($n = 1$), or psychotic disorder not otherwise specified ($n = 25$). Participants were 18 to 79 years old (M=39.2, SD=9.8); 95 (56%) were male, and 75 (44%) were female. A total of 101 (59%) were African-American, 62 (36%) were Euro-American, and 7 (5%) were of mixed race. Participants averaged 14.3 years of treatment (SD=8.8), and displayed common clinical characteristics of chronic psychosis (APA, 1997). Participants were part of a larger study of psychotic clients (e.g., Schwartz & Smith, 2004) not focused on legal problems or related predictors.

Procedures

Written informed consent was obtained from a sample of all clients diagnosed with psychotic disorders during a continuous four-month period. Participants were interviewed according to the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1995). The SCID is a semi-structured interview approach specifically designed to guide clinicians in accurately assessing, evaluating, and diagnosing mental disorders. Interviews were conducted by licensed clinicians trained in the assessment of mental disorders. All initial diagnoses were then confirmed by a board-certified psychiatrist.

A comprehensive psychosocial evaluation, including the collection of demographic information, a medical history, a treatment history, and a social history, was conducted. Next, current psychosocial symptoms were evaluated using the Structured Clinical Interview for the Functional Assessment Rating Scale (SCI-FARS; Ward et al., 1995). Interviewers then assessed participants' current insight into illness. Total interview duration averaged approximately 90 minutes. Immediately following each interview, clinicians completed ratings on the Functional Assessment Rating Scale (Ward & Dow, 1994) and the Scale to Assess Unawareness of Mental Disorder (SUMD; Amador, Strauss, Yale, & Gorman, 1991). All clinicians were blind to the protocol of the study. The research design was approved by the Institutional Review Board of a large state-supported university.

Data Analyses

The dependent variable for research question one was a quantitative variable, the FARS ratings of legal problems. Thirteen independent variables were considered, including 10 FARS ratings of biopsychosocial symptoms and three SUMD ratings of insight into illness. A Pearson correlation matrix was obtained for all independent variables to evaluate bivariate relations with FARS ratings of legal problems. A standard multiple regression analysis (Aron & Aron, 1999) was conducted using independent variables found to have significant bivariate correlations with legal problems. All correlated independent variables were entered into the multiple regression model simultaneously. The dependent variable for research question two was a categorical variable, no significant legal problems (categorized as FARS legal problem ratings of 1-3) versus current legal problems (categorized as FARS legal problem ratings of 4-9). A binomial logistic regression analysis (Mertler & Vannatta, 2002) was conducted utilizing independent variables found to have significant bivariate correlations with legal problems. An alpha level of $p < .05$ was used to interpret results of both statistical analyses. It was estimated that a power of at least .80 was achieved during data analyses ($N = 170$, medium anticipated effect size, alpha level of $p < .05$) (Cohen, 1992).

Instruments

Functional Assessment Rating Scale (FARS). The FARS (Ward & Dow, 1994) is an 18-item instrument used to assess psychosocial symptoms in clients with mental disorders, especially those with psychotic disorders. FARS items are scored according to a standardized 9-point rating system (1 = *absent*, 3 = *mild*, 5 = *moderate*, 7 = *severe*, 9 = *extreme*). Each rating is scored independently as a separate symptom. Higher scores indicate more severe impairments. Ratings in each FARS area are based on how maladaptive each biopsychosocial symptom is in the person's current life (defined as during the prior two weeks). Ratings are based on clinical observations, consults, and reports from the individual and/or collateral sources (family members, law enforcement officers, etc). Ward and Dow (1994) and Ward et al. (1995) report interrater agreement on FARS items ranging from $r = .76$ to $r = .89$, good stability reliability, and good construct validity. Schwartz (1999) reported interrater reliability of $r = .88$, stability reliability correlations of $r = .86$, concurrent reliability correlations of $r = .89$ (with the Positive and Negative Syndrome Scale), and good construct validity. In this study, the FARS was used to assess the following psychosocial symptoms: legal problems, psychosis, medical/physical problems, substance abuse, interpersonal problems, family relationship problems, depression, mania, cognitive problems, traumatic stress, and anxiety.

Legal problems were defined as recent arrests, court appearances, police interventions, or other criminal justice involvement reported and observed. Psychosis was defined as severity of psychotic symptoms based on reported and observed characteristics of psychotic disorders, such as hallucinations, delusions, paranoia, ideas of reference, and grandiosity. Medical/physical problems were characterized by recent debilitating illnesses or injuries, medical hospitalizations, or other medical complications requiring intervention. Substance abuse was described as recent social or occupational problems due to substance

use, inability to cut down or quit substance use despite attempts, or use of substances in situations that are physically hazardous. Interpersonal problems related to recent fights with friends or co-workers, inability to develop or maintain friendships, and lack of intimate relationships despite the desire. Family relationship problems included recent fights with family members, inability to maintain family relationships, and lack of contact with family members despite the desire. Depression was operationalized as recently reported and observed hopelessness, helplessness, dysphoric mood, loss of pleasure in activities previously enjoyed, and psychomotor retardation. Mania referred to recent excessive energy, rapid and pressured speech, decreased need for sleep, and inability to sit still. Cognitive problems included recent mental or cognitive disorganization, disorientation, memory problems, poor abstract thought, and poor concentration. Trauma-related stress was defined as recent upsetting memories, night terrors, hypervigilance, avoidance of places related to a past trauma, and flashbacks. Anxiety was characterized as recent physical tension, signs of nervousness, psychomotor agitation, subjective feelings of stress, and panic-like symptoms (Ward et al., 1995).

Scale to Assess Unawareness of Mental Disorder (SUMD). The SUMD (Amador et al., 1991) is a 20-item instrument used to evaluate a client's current degree of self-awareness (or lack thereof) related to aspects of their mental disorder, including 3 global areas of insight and 17 areas of symptom-specific insight. Items are rated according to a 5-point Likert-type scale (1=fully aware of symptoms/mental disorder, 3=somewhat aware of symptoms/mental disorder, 5=unaware of symptoms/mental disorder). Higher ratings indicate less insight into the disorder. The SUMD is a widely used measure for testing clients' insights, and it has been judged as one of the better instruments of its kind (Schwartz, 1998). The SUMD has good construct validity (Markova & Berrios, 1995), interrater reliability, and test-retest reliability (Amador & Strauss, 1993). Only the three SUMD global insight items were used in this study, as the purpose was to test overall insight into illness: awareness of having a psychotic disorder, awareness of the social consequences of the disorder (e.g., social withdrawal, hospitalizations, interpersonal relationship difficulties), and awareness of the need for treatment (e.g., medications and counseling).

RESULTS

Descriptive statistics revealed that a full range of psychosocial symptoms (*Range* = 1-9 on all FARS items) and insight into illness (*Range* = 1-5 on all SUMD items) were observed in the sample. The most severe symptoms included psychotic symptoms, cognitive problems, and anxiety, respectively. SUMD ratings showed that, on average, participants were somewhat aware of having a mental disorder and the need for treatment, but being less aware of the social consequences of their illness. Table 1 describes descriptive statistics for predictor and criterion variables.

Table 1

Descriptive Statistics for FARS and SUMD Items

Variable	Mean	Standard Deviation
Psychotic Symptoms	4.53	2.41
Cognitive Problems	4.24	2.12
Interpersonal Problems	4.11	2.23
Family Relationship Problems	3.11	1.99
Depression	2.72	1.91
Mania	2.68	1.94
Recent Traumatic Stress	2.24	1.82
Medical/Physical Problems	1.98	1.56
Substance Abuse	1.96	1.89
Legal Problems	1.85	1.79
Insight Into Consequences of Disorder	3.15	1.72
Insight Into Mental Disorder	2.95	1.63
Insight Into Need for Treatment	2.31	1.62

Pearson correlations indicated that 7 of the 13 independent variables had a statistically significant association with legal problems: degree of insight into the need for treatment, manic symptoms, cognitive problems, degree of psychotic symptoms, substance use, interpersonal problems, and family relationship problems. These variables were included in follow-up, inferential analyses. Table 2 shows details of the full Pearson correlation matrix.

Results of the standard multiple regression analysis indicated that the overall model of seven independent variables significantly predicted legal problems, $R^2 = .18$, $R^2_{adj} = .14$, $F (7, 162) = 13.74$, $p < .001$. The model accounted for approximately 18% of the variance in legal problems among psychotic persons. A summary of regression coefficients indicated that only one variable, family relationship problems, significantly contributed to the prediction model of legal problems (Table 3). When controlling for the influence of all other independent variables, as family relationship problems increased, legal problems also increased.

Table 2

Pearson Correlations Between Research Variables (N = 170)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Legal Problems	--	.23*	.08	.20*	.19*	.31*	-.13	.29*	.27*	-.15	-.03	.08	.18*
2. Psychotic Symptoms		--	-.02	.02	.46*	.26*	-.09	.46*	.72*	.09	.40*	.44*	.29*
3. Medical/ Physical Problems			--	.00	.22*	.24*	.13	.02	.11	.06	-.01	-.03	-.07
4. Substance Abuse				--	-.02	.10	.03	.26*	.09	-.04	.14	.08	.03
5. Interpersonal Problems					--	.48*	.14	.25*	.49*	.29*	.09	.22*	.19*
6. Family Relationship Problems						--	.16*	.24*	.29*	.19*	-.05	.07	.09
7. Depression							--	-.01	-.04	.36*	-.15*	-.14	-.20*
8. Mania								--	.46*	.11	.07	.17*	.18*
9. Cognitive Problems									--	.09	.24*	.49*	.37*
10. Traumatic Stress										--	-.13	-.03	-.18*
11. Insight Into Consequences of Disorder											--	.61*	.49*
12. Insight Into Mental Disorder												--	.62*
13. Insight Into Need for Treatment													--

* p < .05

Table 3

Summary of Multiple Regression Analysis (N = 170)

Variable	B	β	t	p
Family Relationship Problems	.21	.23	2.84	.005*
Substance Abuse	.12	.12	1.65	.10
Mania	.13	.14	1.62	.11
Cognitive Problems	.09	.10	.92	.36
Insight Into Need For Treatment	.08	.07	.87	.39
Interpersonal Problems	-.02	-.03	-.32	.75
Psychotic Symptoms	.02	.02	.21	.84

* p < .05

Results of the binomial logistic regression analysis indicated that the overall model of seven predictor variables was statistically reliable in distinguishing between having and not having significant legal problems among psychotic persons, $X^2 (7) = 33.92$, $p < .001$. However, regression results also showed that the overall model fit was questionable, -2 Log Likelihood = 121.39, Goodness of Fit = 245.60. The model did correctly classify 81.8% of cases into one of two groups (i.e., those demonstrating or not displaying legal problems). Regression coefficients are presented in Table 4. Wald statistics indicated that family relationship problems were the only significant predictor of having and not having significant legal problems; as family relationship problems increased legal problems also increased.

Table 4

Summary of Logistic Regression Analysis (N = 170)

Variable	B	Wald	df	p	Odds Ratio
Family Relationship Problems	.45	12.28	1	.001*	1.57
Substance Abuse	.17	2.22	1	.14	1.18
Mania	.19	2.16	1	.14	1.21
Interpersonal Problems	-.13	1.15	1	.28	.87
Cognitive Problems	.13	.66	1	.42	1.14
Psychotic Symptoms	.12	.61	1	.44	1.13
Insight Into Need For Treatment	-.005	.001	1	.97	.99

* p < .05

DISCUSSION

The main finding of this study was that family relationship difficulties, such as recent fights with family members, inability to maintain family relationships, and lack of contact with family members despite the desire, predicted more severe legal problems

among psychotic persons. Although several other biopsychosocial symptoms were associated with legal problems, including less insight into the need for treatment, increased manic symptoms, cognitive problems, psychotic symptoms, substance use, and interpersonal problems, only more severe family relationship problems were a positively correlated predictor of more extreme legal difficulties and also group differences between those with and without severe legal issues. For example, the presence of family relationship problems was the primary variable in a prediction model correctly classifying 81.8% of psychotic persons into those who did or did not have current legal problems. This empirical result was strengthened by the fact that family relationship problems were a significant predictor of legal problems even after controlling for the influence of all other psychiatric, social, physical and insight-related problems psychotic persons faced.

In general, the present findings support prior literature indicating that certain crime predictors in the general population may be overrepresented among psychotic persons (Heinrichs & Sam, 2010). We believe that the present results may differ from those of some previous studies because our design was the first to include a comprehensive model of biopsychosocial factors, rather than isolating each variables separately in different investigations. When family relationship problems became more extreme, psychotic persons were at higher risk for legal problems such as arrests, court appearances, police interventions, or other criminal justice involvement. In support of our findings, Spjeldnes, Jung, Maguire and Yamatani (2012) found that increased family support predicted lower recidivism rates among people experiencing mental illness- who were previously incarcerated.

Living with a psychotic family member can be extremely burdensome and confusing for families. Psychotic symptoms and associated behaviors, such as suspiciousness, irritability, and unpredictability, can negatively impact the family environment. This effect on family functioning may result in broad negative familial attitudes about the psychotic disordered person, and higher caregiver expressed emotion (e.g., critical reactions, anger, hostility). Research has shown that higher caregiver expressed emotion can exacerbate the psychotic disorder itself (Schwartz & Feisthamel, 2014). For example, Schwartz and Feisthamel (2014) found that among all biological, psychological, and social symptoms interpersonal deficits most strongly correlated with family relationship problems among psychotic persons and their caregivers. This pattern can result in a cycle of lower family support during a critical time of heightened symptoms in psychotic persons. Prior researchers also have found that a primary factor in the prognosis of psychotic disorders is positive social support (e.g., family involvement). For example, decreased quality of social support has been associated with more severe symptoms among those with similar mental illnesses (Bengtsson-Tops & Hanson, 2001; Corrigan & Phelan, 2004; Magliano & Fadden, 2000).

Implications for Law Enforcement and Criminal Justice

Symptoms of mental illness should be a main factor considered by officers when making transportation triage decisions (Ritter, Teller, Marcussen, Munetz & Teasdale, 2011). Interactions with law enforcement officers at the scene influence both the immediate disposition of persons experiencing mental illness, and their prognosis for recovery if incorrect triage decisions are made (Lord, Bjerregaard, Blevins & Whisman, 2011). For

example, gaining a criminal record (versus being transported to a treatment facility) may reduce the likelihood of future employment and housing opportunities among those with mental illnesses such as psychosis (Greenberg & Rosenheck, 2008).

Our findings have implications for police officers' interactions with psychotic persons, as first responders must make decisions to arrest versus pursue other courses of action within limited time frame. Consider that approximately 92% of patrol officers report having contact with someone suffering from a mental illness during the previous 30-day period (Cordner, 2006). With training in both psychotic symptoms (e.g., hallucinations and delusions) and related interpersonal problems (APA, 2013), officers could more easily identify mental illnesses, prompting treatment facility triage transportation decisions. If an emphasis is placed on understanding that individuals diagnosed with some form of psychosis frequently present with interpersonal behavior deficits, officers will be less likely to misinterpret these behaviors as a purposeful disregard for authority. Our results showed that certain kinds of interpersonal deficits and/or caregiver higher expressed emotion (i.e., resultant family relationship problems) can lead to more extreme legal ramifications.

Officers should be trained to divert those experiencing symptoms of mental illness away from incarceration and towards treatment facilities (Hanafi, Bahora, Demir & Compton, 2008). This course of action would allow mental health and social service professionals to intervene on an individual basis and perhaps with family members. Relatedly, officers should be informed of the association between family relationship problems and resultant legal problems. Officers should not attempt to immediately transport a psychotic person in distress back to a family environment. Rather, cautious questioning about the psychotic person's social support system and any recent stressors therein should be assessed. Determining the amount and quality of familial support available to a psychotic individual may be useful when considering how to provide adjunct resources, who to contact for follow-up services, and where to transport the individual for maximum benefit. Taking this information into account, and working directly with mental health and social service providers, could be a vital resource in lessening legal ramifications and instead supporting a distressed person in need.

REFERENCES

Amador, X. F., & Strauss, D. H. (1993). Poor insight in schizophrenia. *Psychiatric Quarterly, 64*, 305-318.

Amador, X. F., Strauss, D. H., Yale, S. A., & Gorman, J. M. (1991). Awareness of illness in schizophrenia. *Schizophrenia Bulletin, 17*, 113-132.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.).* Washington, DC: American Psychiatric Association.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: American Psychiatric Association

American Psychiatric Association. (1997). Practice guidelines for the treatment of patients with schizophrenia. *American Journal of Psychiatry*, *154*, 1-63.

Aron, A., & Aron, E. N. (1999). *Statistics for the behavioral and social sciences* (3rd ed.). Upper Saddle River, NJ: Prentice Hall.

Ascher-Svanum, H., Nyhuis, A., Faries, D., Ball, D., & Kinon, B. (2010). Involvement in the US criminal justice system and cost implications for persons treated for schizophrenia. *BMC Psychiatry*, *10*, 1-10. doi: 10.1186/1471-244X-10-11

Bengtsson-Tops, A., & Hanson, L. (2001). Quantitative and qualitative aspects of the social network in schizophrenic patients living in the community, relationship to sociodemographic characteristics and clinical factors and subjective quality of life. *International Journal of Social Psychiatry*, *47*, 47-67.

Buckley, P. F., Hrouda, D. R., Freedman, L., Noffsinger, S. G., Resnick, P. J., & Camlin-Shingler, J. (2004). Insight and its relationship to violent behavior in patients with schizophrenia. *American Journal of Psychiatry*, *161*, 1712-1714. doi: 10.1176/appi.ajp.161.9.1712

Christopher, P. P., McCabe, P. J., & Fisher, W. (2012). Prevalence of involvement in the criminal justice system during severe mania and associated symptomatology. *Psychiatric Services, 63,* 33-39.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.

Constantine, R. J., Robst. J., Andel, R., & Teague, G. (2012). The impact of mental health services on arrests of offenders with a serious mental illness. *Law and Human Behavior*, *36*, 170-176.

Corrigan, P. W., & Phelan, S. M. (2004). Social support and recovery in people with serious mental illness. *Community Mental Health Journal, 40,* 513-523.

Cordner, G. (2006). People with Mental Illness. Retrieved May 5, 2015 from http://www.popcenter.org/problems/pdfs/Mentalillness.pdf

Fazel, S., Langstrom, N., Hjern, A., Grann, M., & Lichtenstein, P. (2009). Schizophrenia, substance abuse, and violent crime. *Journal of the American Medical Association*, *301*, 2016-2023. doi:10.1001/jama.2009.675

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. (1995). *Structured Clinical Interview for Axis I DSM-IV Disorders*. New York: State Psychiatric Institute, Biometrics Research Department.

Fischer, S. N., Shinn, M., Shrout, P., & Tsemberis, S. (2008). Homelessness, mental illness, and criminal activity: Examining patterns over time. *American Journal of Community Psychology*, *42*, 251-265. doi: 10.1007/s10464-008-9210-z

Fullam, R. S., & Dolan, M. C. (2008). Executive function and in-patient violence in forensic patients with schizophrenia. *The British Journal of Psychiatry*, *193*, 247-253. doi: 10.1192/bjp.bp.107.040345

Greenberg, G.A., & Rosenheck, R.A. (2008). Jail incarceration, homelessness, and mental health: A national study. *Psychiatric Services, 49.* 170-177.

Greenberg, G., Rosenheck, R. A., Ericson, S. K., Desai, R. A., Stefanovics, E. A. ... Scott, T. (2011). Criminal justice system involvement among people with schizophrenia. *Community Mental Health Journal*, *47*, 727-736. doi: 10.1007/s10597-010-9362-9

Hanafi, S., Bahora, M., Demir, B., & Compton, M. (2008). Incorporating crisis intervention team knowledge and skills into the daily work of police officers: A focus group study. *Community Mental Health Journal, 44,* 427-432.

Heinrichs, R. W., & Sam, E. P. (2010). Schizophrenia and crime: How predictable are charges, convictions and violence? *International Journal of Mental Health and Addiction*, *10*, 122-131. doi: 10.1007/s11469-010-9308-z

Lord, V. B., Bjerregaard, B., Blevins, K. R., & Whisman, H. (2011). Factors influencing the response of crisis intervention-certified law enforcement officers. *Police Quarterly, 14,* 388-406.

Magliano, L., & Fadden, G. (2000). Family burden and coping strategies in schizophrenia: 1 year follow-up data from the BIOMED I study. *Social Psychiatry and Psychiatric Epidemiology, 35,* 109-115.

Markova, I. S., & Berrios, G. E. (1995). Insight in clinical psychiatry: A new model. *Journal of Nervous and Mental Disease, 183,* 743-751.

McCabe, P. J., Christopher, P. P., Druhn, N., Roy-Bujnowski, K. M., Grundzinskas, A. J., & Fisher, W. H. (2012). Arrest types and co-occurring disorders in persons with schizophrenia or related psychoses. *Journal of Behavioral Health Services & Research, 39*, 271-284. doi: 10.1007/s11414-011-9269-4

Mertler, C. A., & Vannatta, R. A. (2002). *Advanced and multivariate statistical methods* (2nd ed.). Los Angeles, CA: Pyrczak Publishing.

Peng-Yu, C., Mao-Seng, R., Zhi-Gang, L., Wen-Jun, M., Cui-Ping, T., Shi-Hui, H. ... Lai-Wan, C. (2010). Risk factors of criminal behavior in persons with schizophrenia in a rural Chinese community. *Chinese Mental Health Journal*, *24*, 206-210.

Ritter, C., Teller, J., Marcussen, K., Munetz, M., & Teasdale, B. (2011). Crisis intervention team officer dispatch, assessment, and disposition: Interactions with individuals with severe mental illness. *International Journal of Law and Society, 34,* 30-38.

Rosenberg, S. D., Lu, W., Mueser, K. T., Jankowski, M. K., & Cournos, F. (2007). Correlates of adverse childhood events among adults with schizophrenia spectrum disorders. *Psychiatric Services*, *58*, 245-253. doi: 10.1176/appi.ps.58.2.245

Schaub, D., Brune, M., Jaspen, E., Pajonk, F., Bierhoff, H., & Juckel, G. (2011). The illness and everyday living: Close interplay of psychopathological syndromes and psychosocial functioning in chronic schizophrenia. *European Archives of Psychiatry and Clinical Neuroscience*, *261*, 85-93. doi: 10.1007/s00406-010-0122-1

Schwartz, R. C. (1999). Reliability and validity of the Functional Assessment Rating Scale. *Psychological Reports, 84*, 389-391.

Schwartz, R. C. (1998). The relationship between insight, illness and treatment outcome in schizophrenia. *Psychiatric Quarterly, 69*, 1-22.

Schwartz, R. C., & Feisthamel, K. P. (2014). Patient psychosocial symptom predictors of higher caregiver expressed emotion in schizophrenia. *Annals of Psychotherapy, 3*, 1-26.

Schwartz, R. C., Petersen, S., & Skaggs, J. L. (2001). Predictors of homicidal ideation and intent in schizophrenia: An empirical study. *American Journal of Orthopsychiatry*, *71*, 379-384. doi: 10.1037/0002-9432.71.3.379

Schwartz, R. C., & Smith, S. D. (2004). Suicidality and psychosis: The predictive potential of symptomatology and insight into illness. *Journal of Psychiatric Research, 38*, 185-191.

Soyka, M., Graz, C., & Bottlender, R. (2007). Clinical correlates of later violence and criminal offences in schizophrenia. *Schizophrenia Research*, *94*, 89-98.

Spjeldnes, S., Jung, H., Maguire, L., & Yamatani, H. (2012). Positive family social support: Counteracting negative effects of mental illness and substance abuse to reduce jail ex-inmate recidivism rates. *Journal of Social Behavior in the Social Environment, 22,* 130-147.

Vila-Rodriguez, F., Ochoa, S., Autonell, J., Usall, J., & Haro, J. M. (2011). Complex interactions between symptoms, social factors, and gender in social functioning in a community-dwelling sample of schizophrenia. *Psychiatric Quarterly*, *82*, 261-274. doi: 10.1007/s11126-011-9168-0.

Ward, J. C., & Dow, M. G. (1994). *The Functional Assessment Rating Scale*. Tampa, FL: University of South Florida, Department of Community Mental Health.

Ward, J. C., Dow, M. G., Saunders, T., Penner, K., Halls, S., & Sachs-Ericsson, N. (1995). *Structured Clinical Interview for the Functional Assessment Rating Scale*. Tampa, FL.: University of South Florida, Department of Community Mental Health.

Weiss, E. M., Kohler, C. G., Nolan, K. A., Czobor, P., Volavka, J., Platt, M. M. ... Gur, R. C. (2006). The relationship between history of violent and criminal behavior and recognition of facial expression of emotions in men with schizophrenia and schizoaffective disorder. *Aggressive Behavior*, 32, 187-194.

Schwartz, R. C., Kautzman-East, M., Macey, P., & Chopko, B. A. (2015). Biopsychosocial predictors of legal problems among psychotic persons: Implications for law enforcement and criminal justice. [Electronic Version]. *Applied Psychology in Criminal Justice, 11*(2), 63-74.