The effects of insurance status and medical need on community-based health care

access among jail detainees with serious mental illnesses

Caitlin L. O'Grady

James A. Swartz

Jane Addams College of Social Work

University of Illinois at Chicago

Abstract

The present study assessed factors impacting patterns of pre-incarceration medical service access and use among jail detainees with serious mental illnesses and co-occurring substance use disorders. Multivariable logistic and negative binomial models controlling for socio-demographic and psychodiagnostic factors assessed the extent to which insurance status and medical need significantly impacted having a regular health care place/provider and number of emergency and non-emergency care visits in the year prior to detention. The results indicated having insurance was associated with decreased emergency care use and increased access to routine medical care. In comparison to insurance status, medical need was a more important determinant of the frequency of both routine and emergency medical care visits. We believe the results broadly support Medicaid expansion under the Affordable Care Act as well as its provisions for medical homes for offender populations.

Key words: Co-occurring disorders, serious mental illness, jail detainees, health insurance, health care access, criminal justice health care

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In response to concern over the poor health outcomes and shorter life

expectancies among those with a serious mental illness (SMI), there has been a

growing effort to improve this population's access to comprehensive medical care

(Lawrence & Kisley, 2010; Viron & Stern 2010). Provisions in the Patient Protection and

Affordable Care Act (ACA) of 2010, for example, provide opportunities to expand

insurance coverage and facilitate integrated care delivery for underserved populations,

such as those with a SMI. Insurance plans offered through ACA-funded online

exchanges are required to provide behavioral healthcare coverage at full parity with

medical coverage. The ACA also provides for the establishment of health homes for

Medicaid recipients. Health homes are intended to integrate primary, acute, and

behavioral healthcare for individuals with at least two chronic conditions, one of which

can be a mental health condition (Kaiser Commission on Medicaid and the Uninsured,

2012).

There are two important assumptions underlying the ACA provisions for

improving healthcare for those with co-occurring medical and mental health issues.

First, a lack of health insurance and the inability to pay for services is viewed as a

primary barrier to receiving care (DiPietro & Klingenmaier, 2013). Second, it is assumed

that reducing the need to navigate multiple, complex health care systems (e.g., medical,

psychiatric, and substance abuse treatment) will improve overall access to and

coordination of care, thereby promoting better overall health outcomes (Mechanic,

2012; Rich et al., 2014). However, research on service use and access in the general

population, including those with a SMI, has found that simply being insured and having affordable services available does not ensure that services will be accessible, that they will be used, or that they will be of high quality (Collins, Tranter, & Irvine, 2012; Miller, Kirk, Kaiser, & Glos, 2014). Research with adults with disabilities, for example, has found that the impact of insurance status on reducing racial, ethnic, and socioeconomic disparities in service use is limited (Miller et al., 2014).

Whereas the general population of individuals with a SMI presents with complex medical needs and treatment challenges, there is evidence that those with criminal justice system involvement have poorer health conditions and worse outcomes. Persons with a SMI are overrepresented in the criminal justice system, with multiple studies estimating a prevalence rate between 16 to 24% among jail and prison inmates (Brockmann & Rich, 2012; Dumont, Allen, Brockmann, Alexander, & Rich, 2013; Steadman, Osher, Robbins, Case, & Samuels, 2009; Torrey et al., 2014). Research also suggests that individuals with a SMI and a history of criminal justice system involvement experience more medical problems than their non-offender peers (Binswanger et al., 2010; Cuddeback, Scheyett, Pettus-Davis, & Morrissey, 2010; Rosen, Hammond, Wohl, & Golin, 2012). Moreover, since many states historically have suspended or require re-application for Medicaid coverage following arrest and incarceration, offenders with a SMI and complex medical needs have had a high likelihood of being uninsured for an extended period following community re-entry (DiPietro & Klingenmaier 2013; Rich et al., 2014).

Although the criminal justice system-involved population of individuals with a SMI has a high need for medical services, there is limited research exploring the factors

impacting their patterns of service use both pre- and post-incarceration. Whereas research on the general incarcerate population indicates that gender and racial/ethnic background are associated with varying prevalence rates of chronic medical conditions and distinct patterns of pre-incarceration medical service utilization (Binswanger et al., 2010; Dumont et al., 2013; Rosen et al., 2012; Schnittker, Massoglia, & Uggen, 2011), there have not been comparable studies exploring the relationships between gender, race/ethnicity, and medical service access specifically among criminal justice-involved individuals with a SMI. In addition, there is little research with this population that has explored other individual or systemic factors influencing access to and use of medical care that could, potentially, mitigate at least some of the expected benefits of the expanded coverage provided for by the ACA.

To address these gaps, the present study explored how access to and use of medical care prior to jail detention was impacted by insurance status and level of medical need, controlling for socio-demographic and psychodiagnostic factors such as psychiatric diagnoses, functional impairment, and substance use disorders. We hypothesized that, after statistically adjusting for these covariates, insurance status and need for medical care would still significantly influence health care access, operationalized as having a regular health care provider or clinic for routine medical care. Specifically, we hypothesized that having insurance, regardless of type, and having at least a moderate need for medical care would increase the likelihood that a person had a regular medical care provider or clinic. We also hypothesized that not having insurance but having moderate or high medical need would increase use of emergency care services.

Methods

Data for this research were collected for a study of the epidemiology of co-occurring psychiatric and substance use disorders and chronic medical conditions among adult jail detainees in psychiatric treatment. More details on study context, participant characteristics, measures, and methods are provided elsewhere (Swartz, 2010; Swartz, Alaimo, & Kiriazes, 2011). All study procedures were reviewed and approved by the University of Illinois at Chicago and Cook County Institutional Review Boards. Additionally, a Federal Certificate of Confidentiality was obtained from the National Institute on Drug Abuse to protect data confidentiality.

Participants

Data were collected at the Cook County Department of Corrections (CCDOC). CCDOC is a single site urban jail located in Chicago, Illinois with a daily census ranging from 10,000 to 11,000 detainees. At admission, each detainee receives a medical and psychiatric screening by correctional staff. Inmates who report a history of or a current need for psychiatric treatment, or who exhibit psychiatric symptoms during the screening, are referred to an acute care treatment unit for a one to two week psychiatric diagnostic assessment. If the diagnostic assessment indicates that a detainee's psychiatric symptoms are too severe for the person to be treated in the general population, then the detainee is transferred to a residential treatment unit (RTU) to receive additional psychiatric and medical care. Individuals receiving care in the RTU are thus deemed by the staff psychiatrist conducting the diagnostic assessment to have a SMI.

Participants were recruited from male and female detainees 18 years of age or older receiving psychiatric treatment in one of the RTUs. Participants were excluded from the study if they had poor English language comprehension and/or a cognitive or psychiatric impairment that affected their ability to understand and respond to the informed consent process or survey questions. While monolingual Spanish-speaking detainees were excluded from the sampling frame, they represented less than 1% of all cases recruited for the study. Additionally, to avoid oversampling individuals with longer lengths of stay in the RTUs, anyone in residential treatment longer than one month was excluded from the sampling frame.

Completed interviews were obtained for 154 out of the 264 study-eligible women (58%) and for 305 of the 391 study-eligible men (78%), yielding 459 completed interviews and an overall recruitment rate of 70%. Of the 110 females who were eligible but did not complete the interview, 71 (64.5%) consented but left the jail before informed consent could be obtained and 39 (35.5%) declined to participate. Of the 86 eligible but non-interviewed males, 44 (51.2%) consented to participate but left the jail before they could be consented and 42 (48.8%) declined to participate. Of the 459 participants with completed interviews, 28 were excluded post-data collection due to interviewers' determinations that the interviews were of poor quality owing either to inattentiveness or impaired comprehension. Exclusion of these cases yielded the final analytic sample of 431 participants. Of these participants, approximately 60.1% identified as non-Latino Black or African American, 25.5% identified as non-Latino White, 11.6% identified as Latino, and 2.8% identified as belonging to another racial or ethnic group. Approximately half of all research participants were never married, 42.7% had less than

a high school education, and 17.4% had been homeless for at least 30 days in the year prior to their detention. Please refer to Table 1 for more detailed demographic information on the research participants.

Measures

Data used for this study were derived from selected modules of a computerized version of the World Mental Health-Composite International Diagnostic Interview (WMH-CIDI V20.21) augmented and adapted for administration to jail detainees (Swartz, 2010; Swartz et al., 2011). The WMH-CIDI is a fully structured, validated, lay-administered instrument for obtaining DSM-IV and ICD-9 psychiatric and substance use disorder diagnoses (Kessler & Üstün, 2004; Wittchen, 1994). The main independent variables were health insurance status and medical complexity/need for medical care in the year prior to jail detention. The main dependent variables were having ready access to health care either through a physician or clinic and the number of times routine or emergency medical services were used in the year prior to incarceration. Covariates included: past-year psychiatric and substance use disorders, homelessness in the year prior to detention, perceived stigma, functional impairment, and socio-demographics such as gender and race/ethnicity.

Independent Variables. Health insurance status. Participants' insurance status was determined by a sequence of questions asking if they had any health insurance, as well as the type of insurance, in the year prior to detention. Just over fifty percent (54.9%) indicated they had some form of health insurance prior to their jailing. Responses were dichotomized as being insured or uninsured, as the majority of those who were insured (81.3%) reported having publicly funded insurance.

Need for medical care. Need for medical care was assessed using a 3-category variable based on results from a previously conducted latent class analysis of participant responses to questions about chronic medical conditions contained in the WHM-CIDI chronic conditions subsection (Swartz, 2011). This analysis yielded three latent classes based on the pattern and number of self-reported chronic medical conditions. The latent classes include a low complexity/low need medical class (LCMC) with an average of 1.7 reported chronic medical conditions ($N = 150$); a moderate complexity/moderate need medical class (MCMC) with an average of 5.3 medical conditions ($N = 234$); and a high complexity/high need medical class (HCMC) with an average of 10.9 reported medical conditions ($N = 47$). These differences are statistically significant ($F[2, 428] = 406.23$, $p < .001$) (Swartz, 2011).

Covariates. Psychiatric and Substance Use Disorders. Computerized diagnostic algorithms developed for the WMH-CIDI were utilized to generate past-year DSM-IV diagnoses for the following psychiatric disorders: major depression, bipolar disorder, PTSD, generalized anxiety disorder, dysthymia, conduct disorder, and attention-deficit/hyperactivity disorder (American Psychiatric Association, 2000). All diagnoses were assessed dichotomously based on whether a participant did or did not meet DSM-IV criteria for a specified condition in the year prior to arrest.

In addition, we included a provisional diagnosis for a non-affective psychotic disorder (NAP; i.e., schizophrenia, schizoaffective disorder, delusional disorder, and psychosis not otherwise specified) based on a brief screening scale and review of participant responses to open-ended questions conducted independently by the second author, who is a clinical psychologist, and a doctoral student in social work. The

responses from the open-ended questions were used to determine whether participants'

descriptions of their symptom(s), the medications prescribed, and their self-reported

diagnostic history were consistent with one of the diagnoses composing the NAP

designation (see Swartz, 2010 for additional details).

A diagnosis of antisocial personality disorder (ASP) was generated from the

augmented WMH-CIDI that included questions from the National Epidemiological

Survey on Alcoholism and Related Conditions (NESARC) questionnaire (Grant et al.,

2013). Based on published NESARC criteria, a computerized algorithm to generate a

DSM-IV-based diagnosis of ASP was programmed and combined with the other WMH-

CIDI diagnostic algorithms.

Past-year DSM-IV alcohol and drug abuse/dependence were assessed using

responses to WMH-CIDI questions that asked participants about their pre-detention use

of alcohol and other drugs such as: marijuana or hashish, cocaine, amphetamines,

barbiturates, LSD, heroin and other opiates, and the non-medical use of prescription

drugs. Two dichotomous indicators, one reflecting alcohol abuse/dependence and the

other reflecting drug/abuse dependence, were included in the analytic models.

Functional disability. Functional disability in the 30 days prior to incarceration

was assessed using the World Health Organization's Disability Assessment Scale

(WHO-DAS II) included in the 30-day functioning module of the WMH-CIDI. The WHO-

DAS is a 36-item questionnaire covering 6 functional domains (World Health

Organization, 2001). Each item is scored from 0 to 4 on the basis of the degree of

impairment owing to health conditions, with higher scores indicating severe impairment.

Global research with individuals from the general population and subgroups with

physical and mental health conditions has found this measure to have high internal

consistency, with a Cronbach's alpha coefficient of 0.86 (Üstün et al., 2010). It was also

determined to have high test-retest reliability, with an overall intraclass correlation

coefficient of 0.98 (Üstün et al., 2010). A total score was obtained by summing the 36

items across domains. Scores ranged from 0 to 112 with a mean score of 23.9 ($SD =$

23.1).

Homelessness. Participants were classified as being homeless if they had been

without a regular place to stay at least 30 days in the year preceding arrest. Seventeen

percent of study participants ($N = 75$) met this criterion.

Stigma. To assess stigma, the WMH-CIDI was augmented with questions that

asked participants about their perceived stigma associated with having a mental illness.

These questions were drawn from the 21-item *Perceived Devaluation and*

Discrimination Scale (Link, Struening, Neese-Todd, Asmussen, & Phelan, 2001; 2002),

with each item scored on a 4-point Likert scale. According to findings from past

research with individuals with a SMI, this scale has an internal consistency between

0.86 and 0.88 (Link et al., 2001). Scores ranged from 32 to 77 with a mean score of

53.5 ($SD = 5.1$). Higher scores indicated greater perceived stigma.

Socio-demographic variables. The socio-demographic and risk factors modules

of the WMH-CIDI provided information on factors identified in the literature as having

the potential to impact medical need and service use and access, including:

race/ethnicity, gender, age, education level, and marital status (cf., Barnett et al., 2012;

Binswanger et al., 2010; Dumont et al., 2013; Moussavi et al., 2007; Rosen et al., 2012;

Schnittker et al., 2011; Wu et al., 2012). These socio-demographic variables were

primarily measured on a categorical level. For instance, participants were classified into one of four categories based on their number of years of education and into one of four categories for race/ethnicity. Age was measured as both a categorical and an interval level variable, with participants classified into one of four categories (18-25 years of age, 26-35 years of age, 36-45 years of age, and over 45 years of age) for all categorical level analyses.

Dependent variables. Having a regular doctor/place to receive medical care. Information related to patterns of service utilization in the year prior to detention was obtained from the WMH-CIDI services module. Questions assessed whether participants had a regular doctor who provided for their routine medical needs and/or whether they had a regular medical facility they could go to for routine medical care in the year preceding their detention. Participants who responded yes to one or both of these questions (51.2%) were classified as having a regular doctor or place to receive medical care.

Number of visits to medical providers/facilities. Questions in the services module of the WMH-CIDI asked participants about the number of visits to a medical provider or facility for routine, scheduled or emergency care. Based on responses to these questions, we created two dependent variables. One of these dependent variables captured the number of visits to a medical provider for routine or scheduled care in the year prior to detention, while the other assessed the number of visits for emergency medical care.

Procedures

Participant recruitment and data collection occurred over 8 months from February through October 2007 for participants in one of the RTUs. As part of informed consent, a short version of the Mini Mental State Exam (MMSE) (Folstein, Folstein, & McHugh, 1975) was administered to determine if participants had cognitive problems that might affect their ability to comprehend the consent process or understand the interview questions. Individuals scoring below threshold on the MMSE were excluded from the study. Consented participants were administered the WMH-CIDI after first administering a time-line follow back calendar to better anchor their responses in the year preceding jail detention.

All analyses were conducted using Stata version 13.0 (Stata SE, 2014). Prior to running the multivariable models, we assessed the bivariate associations among the main independent variables – insurance status and need for medical care − and study covariates such as socio-demographics, homelessness, past-year psychiatric and substance use disorders, stigma, and functional disability. We also wanted to assess the associations among the two main independent variables and the dependent variables reflecting access to and use of regular medical care in the year pre-detention. We used likelihood chi-square tests to assess the bivariate associations with dichotomous (e.g., gender, having a doctor for regular care) and polytomous (e.g. race/ethnicity, education level) categorical variables. T-tests and one-way ANOVA's were used to test the bivariate associations for interval level variables and count variables such as number of scheduled medical provider visits in the preceding year.

For the dichotomous dependent variable, having a regular doctor or place to obtain medical care, we estimated a multivariable binary logistic regression model using maximum likelihood estimation with robust standard errors. The model included both main independent variables, all study covariates, and an interaction term for insurance status with medical need. Post-estimation, models were assessed for misspecification error using Stata's 'linktest' procedure. The effect size was estimated using Tjur's (2009) recommendation for a "coefficient of determination." This statistic is calculated as the difference between the mean predicted probabilities of having a given condition for observed cases and non-cases and tested for significance using a t-statistic.

For each of the two dependent variables measured as counts, we estimated 4 models using maximum likelihood estimation and robust standard errors: Poisson, negative binomial, zero-inflated Poisson (ZIP), and zero-inflated negative binomial (ZINB). Insurance status and medical need were included in the zero-inflated models as both regular and as inflation factors to determine if they could independently account for part of the large proportion of zeros found in the distribution of each count variable (e.g., 36% of participants indicated they did not see a physician for routine care in the preceding year). In effect, we wanted to determine if some participants did not use routine medical care specifically because they did not have health insurance and/or because they had low or no medical need for care.

The Stata add-on program "countfit" developed by Long and Freese (2014) was used to estimate and compare all 4 models for each of the two count dependent variables. The best fitting model was determined by comparing log-likelihood values, the Wald Chi-Square statistic, and the Akaike (AIC) and Bayesian Information Criterion

(BIC) for each model. We also examined post-estimation plots comparing residual values across the possible range of outcomes for each model.

Results

Table 1 displays the results of the bivariate analyses testing for associations between the independent variables of insurance status and need for medical care and the socio-demographic covariates of race/ethnicity, gender, age, marital status, education level, and homelessness. Results indicated a significant association between age and insurance status (χ^2 [3, $N = 431$] = 8.45, $p < .05$), with a higher percentage of participants between the ages of 18 and 25 and older than 45 reporting they were insured in the year preceding their detention in comparison to participants in the 26-35 and 36-45 age groups. A significant relationship was also found between insurance status and homelessness (χ^2 [1, $N = 431$] = 4.06, $p < .05$), with homeless individuals reporting they were insured at a significantly lower rate than individuals who did not experience homelessness.

Need for medical care was significantly associated with race/ethnicity (χ^2 [6, $N = 431$] = 14.90, $p < .05$), gender (χ^2 [2, $N = 431$] = 31.54, $p < .001$), age (χ^2 [6, $N = 431$] = 74.25, $p < .001$), and marital status (χ^2 [4, $N = 431$] = 17.86, $p < .01$). The high medical need group was disproportionately composed of Latinos and individuals of other racial/ethnic backgrounds, whereas African American participants were more likely to be in the low or moderate medical need group and Whites in the low need group. Females and individuals over 45 were also more likely to have a high level of medical need in comparison to males and younger participants, whereas participants who were never

married were significantly less likely to demonstrate a high level of medical need than

were individuals who were married, separated, divorced, or widowed.

Table 2 displays results of the bivariate analyses assessing the associations

between the independent variables of insurance status and need for medical care, the

dependent variables of access to medical care and number of past year visits to

medical providers, and the covariates of psychiatric and substance use disorder

diagnoses, perceived stigma, functional disability, and number of chronic medical

conditions. Insurance status was significantly related to ASP (χ^2 [1, N = 431] = 4.81, p <

.05). Individuals diagnosed with ASP were insured at lower rates than participants who

did not meet the criteria for this diagnosis. Level of medical need was related to

diagnoses of major depressive episode (χ^2 [2, N = 431] = 19.01, p < .001), dysthymia

(χ^2 [2, N = 431] = 12.88, p < .01), generalized anxiety disorder (χ^2 [2, N = 431] = 9.38, p

< .01), and PTSD (χ^2 [2, N = 431] = 19.76, p < .001), with individuals with all of these

diagnoses demonstrating higher levels of medical need. In addition, as predicted by the

literature on co-occurring medical conditions and SMI, having any psychiatric diagnosis

was significantly associated with having a higher level of medical need (χ^2 [2, N = 431] =

11.16, p < .01). Individuals diagnosed with drug abuse and dependence were also more

likely to have moderate to high levels of medical need (χ^2 [2, N = 431] = 6.74, p < .05),

as were individuals who had a regular provider or place to go for health care in the year

prior to their incarceration (χ^2 [2, N = 431] = 24.43, p < .001). Lastly, a series of one-

way ANOVA's yielded significant relationships between medical need and functional

disability (F [2,424] = 22.30, p < .001), number of co-occurring psychiatric and

substance abuse disorders (F [2,428] = 14.33, p < .001), number of chronic medical

conditions (F [2, 428] = 406.23, p < .001), and number of past year visits to a medical

provider (F [2, 424] = 5.53, p < .01).

Results of the multivariable analyses are displayed in Tables 3 and 4. Table 3

displays the binary logistic regression findings for having a regular provider or place of

care. The overall statistical significance (Wald χ^2 [27, N = 431] = 64.14, p < .001)

indicated the model reliably accounted for variation in the probability of having a regular

health care provider or place of care. Specifically, participants who were insured (OR =

0.83, p < .05), had a moderate need for medical care (OR = 2.79, p < .05), had some

college (OR = 1.93, p < .05) or higher education (OR = 3.03, p < .05), and were Latino

(OR = 2.84, p < .05) had higher odds of having a regular health care provider. Only one

other covariate was statistically significant: male participants had lower odds (OR =

0.45, p < .01) of having a regular medical provider compared with females.

Table 4 displays the findings for the regression analyses of number of past-year

visits for routine medical care and for emergency care. In the case of routine care, we

selected the zero-inflated binomial regression (ZINB) as the best fitting model based on

consideration of the post-estimation statistics described above. For emergency care, we

determined that the negative binomial regression (NB) was the best fitting model. The

likelihood ratio chi-square test (LR = 87.4, p < .001) for the ZINB model and the Wald-

chi-square test (Wald χ^2 [27, N = 431] = 79.3, p < .001) for the NB model were both

statistically significant, indicating that one or more of the predictors in each model were

reliably associated with number of visits to medical providers for routine or emergency

care, respectively.

In both models, having a moderate or high need for medical care was significantly associated with a higher rate of visits compared with participants with low medical need. Having medical insurance was also statistically significant in both models but in the opposite direction; having medical insurance was associated with a higher rate of visits for routine care (IRR = 2.75, $p < .01$) but a lower rate of visits for emergency care (IRR = 0.46, $p < .05$). The interaction between insurance status and need for medical care, however, was not significant in either model.

Both insurance status and need for medical care were strongly and significantly associated as inflation factors in the ZINB model of routine medical visits. The inflation factor odds ratios shown in Table 4 reflect the odds of having zero versus one or more visits for routine medical care in the past year. Hence, odds ratios less than one indicate a lower chance of having no visits. Those who were insured and those who had a high need for medical care had extremely low odds ($OR < .001$) of having no medical visits compared with participants who were uninsured and those with low need for medical care; in other words, they were significantly more likely to have made one or more visits for medical care. Participants with a moderate need for medical care also had decreased odds of having no medical care visits ($OR = 0.66$, $p = .57$), but this effect was not significant.

Although not the focus of this study, among the covariates included as predictors, compared with the findings for insurance status and medical need, the results were inconsistent; none had statistically significant associations across both models. African American participants (IRR = 1.74, $p < .01$) had a higher rate of routine medical care visits whereas participants diagnosed with a bipolar disorder (IRR = 0.56, $p < .01$) or

those with past-year alcohol abuse/dependence ($OR = 0.63$, $p < .05$) had lower rates.

Homeless participants (IRR = 1.60, $p < .05$) and those likely to have a diagnosis of a

non-affective psychotic disorder (IRR = 0.61, $p < .05$) had higher rates of emergency

care use whereas separated, widowed, or divorced participants (IRR = 0.61, $p < .05$)

had a lower rate relative to their respective reference categories.

Discussion

Results of the analyses generally supported our hypotheses that having medical

insurance and a greater need for health care are associated with greater access to and

use of routine medical care, even after controlling for a variety of factors that past

research has suggested would also be related to these outcomes. The results indicated

that having insurance is an important determinant of having a regular provider or place

of care. Insurance status was also associated with a decreased rate of emergency care

use and an increased likelihood of accessing routine medical care at least once in the

preceding year. Having insurance, however, did not affect the rate of routine care use

given any use. On the other hand, increased medical need was a more important

determinant of the frequency of both routine and emergency medical care visits as well

as any versus no use of routine care. Moderate to high medical need was associated

with higher utilization rates of both regular and emergency care regardless of insurance

status.

The findings for medical need and having a regular place for care were mixed. In

comparison to those with a low need for medical care, participants who had a moderate

but not high need for medical care were more likely to have a routine provider or place

of care after adjusting for covariate effects, including insurance status. However, those

with the highest medical need, who had the highest utilization rates for both routine and emergency medical care, were not more likely than those with the lowest need to have a regular medical place or provider. Considering that continuity of care is recommended for high quality and efficient service delivery with individuals presenting with multiple medical conditions (Salisbury, 2012), this finding indicates that high medical need individuals may receive more fragmented services that do not address their range of complex needs.

It is possible that the decreased likelihood of having a regular place or provider for care among high medical need participants is attributable to other demographic differences between this subset of the sample and the lower need participants. For instance, those with high medical need were more likely to have multiple, co-occurring psychiatric conditions such as dysthymia, PTSD, and GAD as well as a substance use disorder. They also had greater functional impairment and were older than other participants, particularly those with low medical need. The co-presence of any one of these factors might not have a large effect on having a regular medical care provider, but their joint occurrence might substantially reduce the likelihood. This finding coincides with Anderson's (1995, 2008) behavioral model of health services use, which asserts that an individual's ability to access health care is influenced by a convergence of factors at the individual and community levels. Accordingly, medical need alone would not be expected to predict the likelihood that individuals will have a regular provider or place to access care, particularly when medical need interacts with other factors such as psychiatric conditions and functional impairment that might pose barriers to service access. This finding is also consistent with past research indicating

that those with high rates of co-occurring psychiatric and medical conditions have more difficulty accessing medical services, despite their greater need for care (Happell, Scott, & Platania-Phung, 2012; Lo, Cheng, & Howell, 2014; Mesidor, Gidugu, Rogers, Kash-MacDonald, & Boardman, 2011).

Among the covariates considered in this study, it is also noteworthy that men had lower odds of having a regular place for routine medical care. This finding is important because men are overrepresented in the criminal justice system in comparison to women (Carson, 2014). Our analysis thus suggests that the detainee population at large may be disproportionately comprised of individuals with limited access to routine medical care prior to their incarceration.

This study has several important limitations. To begin, the findings on high medical need individuals must be interpreted with some caution, as they are based on only a small subset of participants that met study criteria for high medical need. Only 47 of our 431 participants (10.9%) were in the high medical need group and only 17 of these had no medical insurance. Studying the association between high medical need and not having a routine place for care more fully would require a larger number of high need participants – both with and without insurance – to fully power these analyses. The inclusion of qualitative questions on reasons why some high medical need participants did not have a regular provider would also be helpful. Research has found, for example, that barriers such as coordinating appointments with work schedules and family responsibilities, difficulty accessing appointments via public transportation, and transportation costs impeded service access among insured and uninsured individuals involved with the criminal justice system (Wu et al., 2012). Exploring whether these

same barriers impeded high medical need participants from obtaining a regular provider in our study would therefore have provided additional insight into this finding.

In addition, the findings on the relationships between health care access and use and insurance status and medical need are based on jail detainees receiving psychiatric treatment while detained and would not necessarily generalize beyond this population. On the other hand, it is specifically these kind of individuals for whom insurance expansion under the ACA might be the most beneficial. As indicated, almost half did not have medical insurance prior to detention. Furthermore, 81.3% of insured participants in this study had publicly funded insurance and would have their insurance benefits suspended while detained, requiring them to re-instate their benefits on release. While the ACA does not change federal legislation banning Medicaid expenditures while individuals are incarcerated, it is expected that efforts to expand Medicaid will benefit this population upon their release, as "greater eligibility…can help bolster those community connections to care" (DiPietro & Klingenmaier, 2013, p.e26).

Another study limitation is that all data were self-reported and subject to recall bias, resulting in the potential over- or under-reporting of health care access and use as well as the number of lifetime chronic medical conditions, which we used to determine medical need. As a result, participants might not have recalled accurately their use of health care in the year prior to detention, despite our use of the time-line follow-back procedure to better anchor their recollections. Some participants might also not have fully appreciated distinctions between regular or routine care and emergency care, which also could have affected the accuracy of their self-reports.

Furthermore, while this study provides insight into the factors associated with access to and use of medical care among the incarcerate population with a SMI prior to their detention, it did not assess outcomes resulting from health care access and use. Measuring health outcomes is important in light of past findings suggesting that individuals with a SMI may receive lower quality health care (Corrigan et al., 2014). Future research could therefore build on the findings of the present study by exploring the relationship between health care access and use, the quality of care provided, and health outcomes among the incarcerate population with a SMI.

Last, it is important to note that our analysis did not model the effect of multiple arrests and incarcerations on patterns of health care access and use. Considering that available arrest history data for 403 of the study participants indicated that males averaged 22.3 prior arrests $(SD = 21.5)$ and females averaged 24.7 $(SD = 30.3)$, it is possible that this factor influenced the extent to which individuals were able to access care. In particular, this notably high arrest rate suggests that study participants may have been in and out of detention in the year prior to their current incarceration, which could have led to interruptions in their insurance coverage and ability to access routine care (DiPietro & Klingenmaier, 2013). Future research could therefore benefit from assessing the impact of arrest and incarceration history on insurance coverage and health care access and utilization.

These limitations notwithstanding, we believe the results support the importance of the ACA-based expansion of insurance coverage to foster greater access to and use of medical services for disadvantaged and marginalized populations such as those with a SMI under the supervision of the criminal justice system. All of the detainees in our

sample had substantial need for behavioral or medical healthcare, yet only half had

insurance in the year preceding detention, most of whom had publicly funded insurance

through Medicaid or Medicare. The proposed Medicaid expansion under the ACA,

which removes disabling condition as a requirement, is expected to have a substantial

impact on those with criminal justice histories (DiPietro & Klingenmaier, 2013). Thus, we

can expect that many participants in our study would be insurance-eligible if not insured

under the ACA in states that expand Medicaid. This in turn could mean an increase in

the proportion of detainees having a regular place of care and using the ER less

frequently.

Considering the lack of research on pre-incarceration patterns of health care use

among detainees with a SMI, this study also provides insight into the factors influencing

health care access and use among this population. Findings indicated that insurance

status and level of medical need are significant factors influencing the rate of service

utilization as well as access to regular care. While these results suggest that ACA-

based efforts to expand insurance coverage provide an important opportunity to expand

access to care for this population, the influence of psychiatric diagnoses on patterns of

service use also points to the importance of the establishment of medical homes that

provide coordinated medical and mental health care for individuals with chronic medical

conditions, including a SMI. Because medical homes are intended to provide services

for individuals with chronic co-occurring conditions (Kaiser Commission on Medicaid

and the Uninsured, 2012), they provide an opportunity for promoting comprehensive

service delivery among the small but medically complex group of participants in our

study who had the highest rates of co-occurring substance use and psychiatric

disorders, but who were no more likely to have a routine place for care than lower need

participants. Pre-ACA, it is likely they received care from a variety of providers,

resulting in care that was probably neither efficient nor effective (Marks & Turner, 2014;

Swartz & Jantz, 2014). Our results suggest that once insured, their rates of emergency

care use will likely decrease.

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Author Note

Caitlin L. O'Grady is a PhD Candidate in the Jane Addams College of Social Work at the University of Illinois at Chicago.

James A. Swartz is an associate professor in the Jane Addams College of Social Work at the University of Illinois at Chicago.

All correspondence regarding this article should be sent to: Caitlin L. O'Grady, Jane Addams College of Social Work, University of Illinois at Chicago, 1040 W. Harrison Street, (M/C 309) Chicago, IL 60607. Email: cograd5@uic.edu.

Biographical Note

Caitlin L. O'Grady is in the third year of her doctoral studies at the Jane Addams College of Social Work. Her practice background is in community mental health. Her research interests are related to issues surrounding access to medical and mental health services for underserved populations, with a particular emphasis on issues surrounding mental health service delivery for the Latino immigrant community.

James A. Swartz has a clinical psychology degree from Northwestern University. For over 20 years he has studied issues related to drug use and crime, recently expanding his research to include co-occurring psychiatric and substance use disorders and how to provide integrated care for criminal justice populations.