



# Understanding the relationship between social support and physical and mental well-being among jail detainees living with HIV

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## Abstract

Inmates face a disproportionate burden of HIV. This study sought to explore the relationship between social support and physical and mental well-being and the possibility that housing stability moderates this relationship among jail detainees living with HIV. Data for this cross-sectional analysis come from 438 clients who underwent a structured interview. Results indicate a significant positive relationship between social support and both types of well-being ( $ps < .05$ ); the experience of homelessness was associated with less mental well-being ( $p < .01$ ). There was no evidence of moderation. Results highlight the importance of social support and economic considerations in understanding well-being among HIV+ jail detainees.

## Keywords

adults, AIDS, social support, socioeconomic status, well-being

## Introduction

Jail detainees face a disproportionate burden of HIV along with many other conditions that impact their physical and mental well-being. In the most recently published national survey of jail inmates, 1.3 percent self-reported being HIV

infected (Maruschak, 2006). In comparison, the Centers for Disease Control and Prevention estimates that 0.5 percent of the US adult population in 2008 was HIV infected (Centers for Disease Control and Prevention, 2011). Thus,

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the prevalence of HIV in jail settings remains almost three times higher than the general population prevalence.

Jail detainees living with HIV often experience a range of other health, economic, and social challenges above and beyond their disease. For example, they have higher rates of substance abuse and mental illness than those in the general population (Glaze and James, 2006; Karberg and James, 2005). Because of poor access to health care, lower educational attainment, unemployment, and underemployment, jail detainees living with HIV may not have been receiving the recommended HIV treatment and care prior to incarceration (James, 2004). Although US jails are expected to deliver health care to inmates *Estelle v. Gamble* – 429 U.S. 97 (1976), once released to the community, many individuals return to situations of poor access to needed treatment and care. Individuals who are awaiting trial and those convicted of a crime but given a short sentence (often 1 year or less depending on the jurisdiction) are detained in jails and have frequent short stays. Up to 9 million individuals flow into and out of US jails every year with a weekly turnover rate of almost 65 percent (Minton, 2011; Spaulding et al., 2009). Thus, HIV-infected jail detainees, like other jail detainees, transition into and out of jails with great frequency. Indeed, 1 in 7 HIV-infected Americans passed through a correctional facility in 2006 (Spaulding et al., 2009). Like others, jail detainees living with HIV face financial and legal concerns when released from jail to the community; managing a chronic illness adds to the challenges (Freudenberg et al., 2005). For many jail detainees living with HIV and its concomitant stigma (Derlega et al., 2010), exposure to violence and trauma, substance abuse, and marginal living conditions converge in ways that exacerbate the typical challenges of community reintegration upon release from jail. These life circumstances work to compromise the mental and physical well-being of individuals living with HIV before, during, and after their time in jail (Clear et al., 2001; Freudenberg et al., 2005).

## ***Social support***

A large literature implicates social support as having a direct relationship with mental and physical well-being (Helliwell and Putnam, 2004; Uchino, 2006). Studies of adults in the general population have found that increased social support is associated with increased mental and physical well-being and that this effect persists across different measures of social support (Uchino, 2006). For detainees, it might be expected that to the extent that social support is directly related to physical and mental well-being, increased social support may be associated with reduced homelessness, improved clinical health, decreased emergency department visits, and improved medication adherence (Goldstein et al., 2009; Meyer et al., 2011). However, for many of these individuals, it might be that conventional wisdom about the value of social support is poorly applied to populations in which their social network includes a large number of individuals who exert as much of a negative influence as a positive one. Social support in the form of exchange of services for goods, income from illegal activity, and other financial support may be tied to negative relationships. These relationships may be tied to illegal activities that can generate income that puts the person in a double bind, by creating negative consequences (potentially arrest, incarceration, and sexual assault) in order to support basic needs. Indeed one's underlying desire may be to get away from the individuals who serve as his or her primary source of income.

## ***Social support and housing stability***

The available options to maintain health and well-being are limited in situations of poverty and housing instability (Kushel et al., 2006; Weiser et al., 2009). Housing instability has been defined as “having difficulty paying rent, having frequent moves, living in overcrowded conditions, or doubling up with friends and relatives” (Kushel et al., 2006). To the extent that housing instability is an

indicator of socioeconomic status, the Theory of Fundamental Causes explains why housing and health might be interrelated (Link and Phelan, 1995; Phelan et al., 2004). This theory posits that social factors such as social support and socioeconomic status confer access to important resources (e.g. money, power, prestige, and/or social connectedness) and thereby have the potential to serve as “fundamental causes” of a range of physical and mental health conditions. Based on a strong empirical foundation of studies linking social conditions to disease, the theory advances the notion that disease risk at the individual level must be examined in the context of the broader social conditions that expose individuals to health-compromising conditions. Thus, well-being is theorized to be a function of access to social and material resources. As applied to this study, less social support and greater housing instability might be associated with less well-being.

Those who cycle in and out of jail settings place a great demand on their families and the communities to which they return as well as the criminal justice systems that must address these health issues. For those living with HIV, unstable housing may lead to poor control of their disease (Aidala et al., 2007; Kidder et al., 2007). In absence of basic needs being met on release from jail, “social supports” may have unintended consequences, since they are tied to basic survival by any available means for those whose options are limited due to social circumstances, criminal history, and health status.

### **Purpose**

There is a need for a better understanding of the role of social support in shaping mental and physical well-being among jail detainees. Such an analysis would also benefit from an examination of the extent to which indicators of socioeconomic status moderate this relationship. This study explores the independent effects of social support and housing stability on mental and physical well-being among HIV-infected jail detainees. It also explores the possibility that housing stability moderates the relationship

between social support and well-being because it creates circumstances in which individuals have to rely less on others. This study tests two hypotheses:

*Hypothesis 1:* Social support and housing stability would be positively associated with physical and mental well-being among HIV+ jail detainees;

*Hypothesis 2:* The relationship between social support and well-being is moderated by housing stability among HIV+ jail detainees.

### **Methods**

This study is part of an initiative that tested novel interventions to improve access to HIV testing, treatment, and care in jail settings implemented at 10 sites. It emphasized delivering discharge planning services to HIV+ clients while they were in jail in order to ensure that they were linked with the necessary medical, mental health, substance abuse, and social services upon release. A more thorough description of the initiative (including the multisite evaluation) is provided elsewhere (Draine et al., 2011; Spaulding et al., 2007, 2012). Inclusion criteria for this cohort of HIV-infected jail detainees varied somewhat among the 10 grantees funded under this initiative but at the minimum, participants were required to have been detained at the collaborating jails and aged 18 years or above. Data for this study were collected from clients at the five sites that collected data using the optional social support module within the multisite evaluation (Ohio, Illinois, Pennsylvania, South Carolina, and Connecticut). Data for this present analysis come from 438 clients who enrolled in the client-level data component of the multisite evaluation of the EnhanceLink study and had usable social support data.

### **Data collection methods**

Clients were invited to enroll in the discharge planning program delivered under the EnhanceLink

initiative. Those who enrolled into the program were then offered participation in the client-level multisite evaluation. This entailed participation in a baseline interview (conducted in English or Spanish as desired), which was generally conducted while the client was in jail (however, for 7% of enrollees, it occurred within 7 days of release), and a follow-up interview conducted at approximately 6 months post release. To ensure consistency of delivery, project staff underwent Web-based training on the administration of the surveys, which were read aloud. Data for this study are from the baseline interview only with one exception. Data on substance abuse were abstracted from the jail medical chart after the participant was released from jail.

## Measures

The baseline interview drew heavily from the Addiction Severity Index Lite (McLellan et al., 1997) and included a subset of items from the Homeless Index National Evaluation (Huba et al., 1996). It assessed a range of social and behavioral characteristics (including medical and health insurance status, drug and alcohol use, psychiatric status, and criminal justice involvement), but only the measures relevant to this study are described below.

**Social support.** Social support was measured via an adapted 20-item Social Support Survey Instrument of the Medical Outcomes Study (RAND Health, 2012). The first item asks participants how many close friends and relatives they have. Data from this item are not used in this study, but they serve to anchor the remaining 19 items, which ask participants how often each type of social support is available to them. Sample items include "someone to help if you were confined to bed," "someone to give you advice about a crisis," and "someone to do something enjoyable with." Response options ranged from "none of the time" to "all of the time" and were scored on a 1- to 5-point scale. They were subsequently recoded so that they would be on a 0- to 4-point scale. These items

were demonstrated to be internally consistent in this study ( $\alpha=.98$ ). A total social support score was created by summing across the 19 items such that higher scores indicate more social support. However, this summed variable was left skewed, so we took the natural log of the original variable after adding 1 (because the raw data included zeros) as recommended for left-skewed data (Norman and Streiner, 2008).

**Housing stability.** Housing status was measured by an item that asked participants how many days they slept in various locations (e.g. a shelter, rented room, and in a park) in the 30 days before their most recent incarceration. Response options were "0," "1-2," "3-5," "6-10," and "more than 10." Participants who reported spending at least 1 day in a shelter, on the streets or in a park, in an empty building, or in a library, bus station, all-night movie, airport, or some other public place were categorized as having experienced homelessness. Participants who were not considered to have been homeless but did report spending at least one night in a rented room or in someone else's home were categorized as being marginally housed. Those who did not report experiencing any of these housing situations were considered to be stably housed. A similar rubric for categorizing housing status has been used in other studies (Chen et al., 2011; Topp et al., 2012).

**Well-being.** The SF-36V2 Health Survey is a widely used measure of functional health and well-being from the patient's perspective (QualityMetric, 2012b). Because of time constraints, we used the shorter version of this scale, the SF-12V2 (QualityMetric, 2012a). This scale has physical and mental well-being components. The physical well-being items assess the extent to which their health limits their ability to engage in standard daily activities (e.g. climbing several flights of stairs) and accomplishing daily goals. The mental well-being items assess the extent to which their emotional problems limit their ability to carry out daily goals and how they feel in general

(e.g. calm and peaceful, downhearted). Physical and mental well-being composite scores were calculated separately using formulas distributed by the author (QualityMetric, 2012a). There is evidence that the psychometric properties of the shortened 12-item form are similar to the full 36-item version of the scale (Ware et al., 1996).

**Additional items.** Additionally, 1 item on the baseline interview asked participants to report how many times they had been arrested in their life. Standard demographic characteristics were assessed, such as age, gender, race, ethnicity, and whether the participant had a profession, trade, or skill. Because of concern for socially desirable responding, the substance use variable used in the current analysis was not self-reported but extracted from the jail medical chart based on a clinical assessment taken upon jail intake. After the participant's release from jail, a project staff member reviewed the jail medical chart and completed a form that included the following item: "Does the chart indicate that the client has a substance disorder?" Response options were "drug use/abuse," "alcohol abuse," "none," or "unknown." Those with evidence of "drug use/abuse" were classified as experiencing substance abuse for the purpose of the current analysis.

### Statistical analysis

We initially examined frequency distributions of all relevant categorical variables and performed descriptive statistics on all continuous variables. Next, we used  $\chi^2$  test, *t*-tests, correlation, and analysis of variance (ANOVA) when appropriate to examine each demographic variable (age, race, and ethnicity (i.e. Hispanic/Spanish origin), gender, and professional training) and behavioral variable (number of lifetime arrests and substance abuse) in relationship to each study variable. We conservatively opted to control for variables that were significantly associated with *either* an independent (i.e. a predictor or moderator) or a dependent variable.

Next, we examined the bivariate associations among social support, housing status, and well-being (both physical and mental) using correlation and ANOVA as appropriate. The main outcome analysis used generalized estimating equations, specifically linear regression models because of the continuous dependent variables. The purpose of this analysis was to allow for the use of nested terms (because participants were nested within site) while examining both main effects (of social support and housing status) and interaction effects (i.e. social support by housing status) in order to test for moderation (Frazier et al., 2004). By including in the model a subject effect that was a participant-by-site interaction, we were able to control for within-site variability in participant responses. The model effects that were tested were social support, housing status, their interaction, and six covariates that emerged from the preliminary analyses to assess confounding as described above: age, gender, race, ethnicity, professional training, and substance abuse. Because generalized estimating equations do not generate standardized regression coefficients (which are easier to interpret and compare across multiple predictors than unstandardized regression coefficients), only the latter are presented. Raw parameter estimates are interpreted according to the original scale in which they are measured on. All analyses were conducted using SPSS 19.0. An  $\alpha$  level of .05 was used to establish statistical significance.

## Results

### Sample characteristics

Table 1 presents sample characteristics from the 438 study participants. Participants' mean age was 43 years (range = 21–65 years). They tended to be male, Black, and Non-Hispanic. Participants reported being arrested an average of 19 times over the course of their lives, and medical charts documented drug abuse problems for 60 percent of participants. Approximately 25 percent of participants reported experiencing homelessness in

**Table 1.** Participant demographic, behavioral, and study characteristics ( $N = 438$ ).

Characteristic	$N$ (%)
<i>Demographics</i>	
Age (years)	
Range	21–65
M (SD)	43.4 (9.4)
Male	264 (60.3)
Race	
Black	320 (73.1)
Non-Black	118 (26.9)
Hispanic	44 (10.0)
Profession, trade, skill	
Yes	194 (44.3)
Site	
Ohio	108 (24.7)
Illinois	79 (18.0)
Pennsylvania	43 (9.8)
South Carolina	97 (22.1)
Connecticut	111 (25.3)
<i>Behaviors</i>	
Number of lifetime arrests	
Range	0–200
M (SD)	18.7 (24.0)
Drug use	
Yes	263 (60.0)
<i>Study variables</i>	
Social support	
Range	0.0–76.0
M (SD)	49.1 (24.3)
Housing status	
Homeless	108 (24.7)
Marginally housed	140 (32.0)
Stably housed	190 (43.4)
Physical well-being	
Range	17.6–73.6
M (SD)	44.5 (12.6)
Mental well-being	
Range	4.32–66.3
M (SD)	37.7 (14.1)

SD: standard deviation.

the 30 days before their most recent incarceration. In all, 32 percent of participants reported marginal housing situations during this same time period, and 44 percent reported being stably housed during this time period (see Table 1).

### Bivariate associations

Results indicate significant positive associations between social support and both physical ( $r(419) = .18, p \leq .001$ ) and mental ( $r(419) = .26, p \leq .001$ ) well-being. ANOVA revealed that housing status was associated with social support ( $F(2, 416) = 12.02, p \leq .001$ ) and mental well-being ( $F(2, 435) = 8.47, p \leq .001$ ), but not physical well-being ( $p > .05$ ). Post hoc tests determined that marginally ( $p \leq .001$ ) and stably ( $p \leq .001$ ) housed individuals reported significantly more social support than homeless individuals and that stably housed individuals demonstrated significantly more mental well-being than homeless individuals ( $p \leq .001$ ).

### Social support, housing stability, and well-being

Tables 2 and 3 present the results of the multiple regressions using generalized estimating equations for physical and mental well-being, respectively. Model 1 demonstrates that of the six covariates examined, only age is significantly associated with physical well-being (see Table 2). Model 2 indicates that while controlling for these covariates, social support is associated with greater physical well-being ( $p < .05$ ); however, there were no significant effects of housing or the interaction between social support and housing while controlling for the covariates (see Models 3 and 4 in Table 2). Table 3 presents the same four models except with mental well-being as the dependent variable. Model 1 indicates that no covariates are significantly associated with mental well-being. Model 2 indicates that social support is positively associated with mental well-being ( $p < .001$ ). Model 3 demonstrates that there was a significant effect of housing such that those who experienced homelessness reported poorer mental well-being than those who reported being stably housed ( $p < .01$ ). However, as before, the interaction term between social support and housing was not significant. The main effect of social support did, however, remain

**Table 2.** Raw parameter estimates of physical well-being regressed on social support, housing status, and their interaction ( $N = 438$ ).

Model effect	Model 1: covariates only	Model 2: covariates and social support only	Model 3: covariates and housing status only	Model 4: covariates, social support, and housing status
Intercept	56.1***	50.7***	58.0***	55.4***
Age	-0.3***	-0.3***	-0.3***	-0.3***
Gender	1.8	2.2	1.4	1.8
Race	-2.9	-2.5	-3.1	-2.7
Ethnicity	0.7	0.6	0.7	0.9
Professional training	0.5	0.4	0.4	0.4
Substance abuse	2.0	1.8	1.6	1.3
Social support	-	1.3*	-	1.5
Housing status = 0	-	-	-1.4	2.9
Housing status = 1	-	-	-2.8	-5.7
Social support × housing status = 0	-	-	-	-1.1
Social support × housing status = 1	-	-	-	.8
Goodness of fit	57,080	56,169	56,554	55,396

For housing status, 0 = homeless, 1 = marginally housed, and the referent is 2 = stably housed.

\* $p \leq .05$ ; \*\*\* $p \leq .001$ .

**Table 3.** Raw parameter estimates of mental well-being regressed on social support, housing status, and their interaction ( $N = 438$ ).

Model effect	Model 1: covariates only	Model 2: covariates and social support only	Model 3: covariates and housing status only	Model 4: covariates, social support, and housing status
Intercept	36.3***	27.7***	38.4***	27.7***
Age	0.0	0.0	0.0	0.0
Gender	1.9	2.6	1.6	2.4
Race	-2.1	-1.5	-2.2	-1.8
Ethnicity	-2.1	-2.3	-2.4	-2.6
Professional training	2.4	2.2	2.1	1.9
Drug use	1.7	1.3	1.0	0.7
Social support	-	2.2***	-	2.7***
Housing status = 0	-	-	-4.8**	-2.4
Housing status = 1	-	-	-2.1	-6.5
Social support × housing status = 0	-	-	-	-0.3
Social support × housing status = 1	-	-	-	-2.3
Goodness of fit	73,593	71,266	72,239	70,017

For housing status, 0 = Homeless, 1 = marginally housed, and the referent is 2 = stably housed.

\*\* $p \leq .01$ ; \*\*\* $p \leq .001$ .

even with the interaction term in the model as indicated by model 4 (see Table 3).

## Discussion

This study sought to explore the direct relationship between social support and well-being in addition to housing stability and well-being. We also sought to explore the possibility that housing stability moderates the relationship between social support and well-being. The first hypothesis received partial support. Social support was positively associated with both physical and mental well-being. However, housing status was only significantly associated with mental well-being, not physical well-being. Results indicate that when compared to individuals who are stably housed, those who experienced homelessness in the 30 days before their most recent incarceration reported poorer mental well-being. The second hypothesis was not supported in that there was no evidence of moderation of the relationship between social support and well-being (physical or mental) due to the lack of significant interaction in a full model with both main effects included.

The relationship between social support and both types of well-being is in line with the Theory of Fundamental Causes (Link and Phelan, 1995; Phelan et al., 2004) as well as traditional theories of social support (Heaney and Israel, 2008; House, 1981; Uchino, 2006). It is notable that this relationship was stronger for mental than physical well-being, which suggests that the type of social support being received may be less material in nature (e.g. tangible support) and more along the lines of emotional support. Our measure of social support was certainly more sensitive to this type of social support than other types (e.g. affectionate). Alternatively, because participants are living with HIV/AIDS, it could be that their disease limits the impact that social support can have on their physical health. It might be that the disease plays too great of an impact on participants' physical well-being for it to be influenced by social support. Clearly, more research

is needed to explore the quality and quantity of support offered in order to better understand the differential strength of the relationship between social support and each type of well-being among HIV+ jail detainees.

The finding that being stably housed was associated with more mental well-being is also consistent with the Theory of Fundamental Causes (Link and Phelan, 1995). However, it is curious that this finding did not hold for physical well-being. Stable housing is thought to facilitate one's ability to adhere to treatment regimens, attend medical appointments, and manage disease in general (Aidala et al., 2007; Kidder et al., 2007; Kushel et al., 2006). Other studies have found that stable housing is positively associated with improved health and access to care among those living with HIV/AIDS (Booker et al., 2012; Chen et al., 2011; Hawk and Davis, 2012). However, participants of this study may have so many other life circumstances that create instability (e.g. negative social influences such as drug dealers or pimps, addiction, and engagement in criminal behavior) that housing alone is only one small part of the milieu of relevant conditions. Given participants' HIV status, the role of access to quality HIV treatment and care may overshadow any effects of housing status.

It is important to acknowledge some limitations. As the study consists of cross-sectional data, we cannot provide any evidence of causality. The relationship between social support and well-being is likely to be bidirectional and possibly influenced by a third variable under some circumstances. Additionally, participants in this study may not be representative of jail inmates living with HIV in the collaborating jails because of self-selection bias. Finally, the measure of housing status is limited in that it reflects a more recent situation (i.e. the 30 days prior to incarceration) in lieu of presenting an assessment of one's housing status over a longer period of time.

Our results highlight the importance of social support and economic considerations relevant to the Theory of Fundamental Causes

(Link and Phelan, 1995; Phelan et al., 2004) in understanding well-being among HIV+ jail detainees. Specifically, issues around social support are complex and depend on the nature of the support being provided. Moreover, the procurement of stable housing for persons infected with HIV is of critical importance in achieving mental well-being. The National HIV/AIDS Strategy recognizes that prioritization of the management of HIV disease is difficult for those with “competing demands and challenges meeting their basic needs for housing, food, and child care” (The White House Office of National AIDS Policy, 2010). Because of these competing demands, more in-depth exploration of the lives of HIV-infected detainees is needed to inform the development of social and structural interventions that support their physical and mental well-being.

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### Declaration of conflicting interests

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### References

- Aidala A, Lee G, Abramson D, et al. (2007) Housing need, housing assistance, and connection to medical care. *AIDS and Behavior* 11: S101–S115.
- Booker CA, Flygare CT, Solomon L, Ball SW, Pustell MR, Bazerman LB, Simon-Levine D, Teixeira PA, Cruzado-Quinones J, Kling RN, Frew PM, Spaulding AC and The Enhance-Link Study Group. Linkage to HIV Care for Jail Detainees: Findings From Detention to the First 30 Days After Release. *AIDS & Behavior*. DOI 10.1007/s10461-012-0354-3 (epub ahead of print; December 6, 2012).
- Centers for Disease Control and Prevention (2011) HIV surveillance—United States, 1981–2008. *Morbidity and Mortality Weekly Report* 60: 689–729.
- Chen NE, Meyer JP, Avery AK, et al. (2011) Adherence to HIV treatment and care among previously homeless jail detainees. *AIDS and Behavior*.
- Clear TR, Rose DR and Ryder JA (2001) Incarceration and the community: The problem of removing and returning offenders. *Crime & Delinquency* 47: 335–351.
- Derlega VJ, Winstead BA, Gamble KA, et al. (2010) Inmates with HIV, stigma, and disclosure decision-making. *Journal of Health Psychology* 15: 258–268.
- Draine J, Ahuja D, Altice FL, et al. (2011) Strategies to enhance linkages between care for HIV/AIDS in jail and community settings. *AIDS Care* 23: 366–377.
- Frazier P, Tix A and Barron K (2004) Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology* 51: 115–134.
- Freudenberg N, Daniels J, Crum M, et al. (2005) Coming home from jail: The social and health consequences of community reentry for women, male adolescents, and their families and communities. *American Journal of Public Health* 95: 1725–1736.
- Glaze LE and James DJ (2006) *Mental health problems of prison and jail inmates*. Bureau of Justice Statistics Special Report. NCJ 213600, September. Washington, DC: US Department of Justice.
- Goldstein EH, Warner-Robbins C, McClean C, et al. (2009) A peer-driven mentoring case management community reentry model: An application for jails and prisons. *Family & Community Health* 32: 309–313.
- Hawk M and Davis D (2012) The effects of a harm reduction housing program on the viral loads of homeless individuals living with HIV/AIDS. *AIDS Care* 24: 577–582.
- Heaney C and Israel B (2008) Social networks and social support. In: Glanz K, Rimer B and Viswanath K (eds) *Health Behavior and Health Education*. San Francisco, CA: Jossey-Bass, pp. 189–207.
- Helliwell JF and Putnam RD (2004) The social context of well-being. *Philosophical Transactions of*

- the Royal Society of London Series B: Biological Sciences* 359: 1435–1446.
- House J (1981) *Work Stress and Social Support*. Reading, MA: Addison-Wesley.
- Huba G, Melchior L, Staff of The Measurement Group, et al. (1996) Module 35: Homelessness Index. Available at: <http://www.TheMeasurementGroup.com>
- James DJ (2004) *Profile of jail inmates, 2002*. Bureau of Justice Statistics Special Report. NCJ 201932, 18 July. Washington, DC: US Department of Justice.
- Karberg JC and James DJ (2005) *Substance dependence, abuse, and treatment of jail inmates, 2002*. Bureau of Justice Statistics Special Report. NCJ 209588, July. Washington, DC: US Department of Justice.
- Kidder D, Wolitski R, Campsmith M, et al. (2007) Health status, health care use, medication use, and medication adherence in homeless and housed people living with HIV/AIDS. *American Journal of Public Health* 97: 2238–2245.
- Kushel MB, Gupta R, Gee L, et al. (2006) Housing instability and food insecurity as barriers to health care among low-income Americans. *Journal of General Internal Medicine* 21: 71–77.
- Link BG and Phelan J (1995) Social conditions as fundamental causes of disease. *Journal of Health and Social Behavior* 35: 80–94.
- McLellan A, Cacciola JS and Zanis D (1997) *The Addiction Severity Index—“Lite” (ASI-“Lite”)*. Philadelphia, PA: Center for the Studies of Addiction: University of Pennsylvania/Philadelphia VA Medical Center.
- Maruschak L (2006) *Medical problems of jail inmates*. Bureau of Justice Statistics Bulletin. NCJ 210696, November. Washington, DC: US Department of Justice.
- Meyer JP, Chen NE and Springer SA (2011) HIV treatment in the criminal justice system: Critical knowledge and intervention gaps. *AIDS Research and Treatment* 1–10.
- Minton TD (2011) *Jail Inmates at Midyear 2010—Statistical Tables*. Washington, DC: Bureau of Justice Statistics.
- Norman GR and Streiner DL (2008) *Biostatistics: The Bare Essentials*. Shelton, CT: People’s Medical Publishing House.
- Phelan J, Link B, Diez-Roux A, et al. (2004) “Fundamental causes” of social inequalities in mortality: A test of the theory. *Journal of Health and Social Behavior* 45: 265–285.
- QualityMetric (2012a) SF-12v2 Health survey. Available at: <http://www.qualitymetric.com/WhatWeDo/SFHealthSurveys/SF12v2HealthSurvey/tabid/186/Default.aspx>
- QualityMetric (2012b) SF-36v2 Health survey. Available at: <http://www.qualitymetric.com/WhatWeDo/SFHealthSurveys/SF36v2HealthSurvey/tabid/185/Default.aspx>
- RAND Health (2012) Medical outcomes study: Social support survey instrument. Available at: [http://www.rand.org/health/surveys\\_tools/mos/mos\\_socialsupport\\_survey.html](http://www.rand.org/health/surveys_tools/mos/mos_socialsupport_survey.html)
- Spaulding AC, Booker CA, Freeman SH, et al. (2012) Jails, HIV testing, and Linkage to care services: An overview of the EnhanceLink Initiative. *AIDS and Behavior*.
- Spaulding AC, Jacob Arriola KR, Ramos KL, et al. (2007) Enhancing linkages to HIV primary care in jail settings. *Journal of Correctional Health Care* 13: 93–128.
- Spaulding AC, Seals RM, Page MJ, et al. (2009) HIV/AIDS among inmates of and releases from US correctional facilities, 2006: Declining share of epidemic but persistent public health opportunity. *PLoS ONE* 4: e7558.
- The White House Office of National AIDS Policy (2010) National HIV/AIDS Strategy for the United States This is a report that is available at: <http://www.whitehouse.gov/administration/eop/onap/nhas> Accessed July 19, 2013
- Topp L, Iversen J, Baldry E, et al. (2012) Housing instability among people who inject drugs: Results from the Australian needle and syringe program survey. *Journal of Urban Health*.
- Uchino BN (2006) Social support and health: A review of physiological processes potentially underlying links to disease outcomes. *Journal of Behavioral Medicine* 29: 377–387.
- Ware J Jr, Kosinski M and Keller S (1996) A 12-item Short-Form Health Survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care* 34: 220–233.
- Weiser S, Bangsberg D, Kegeles S, et al. (2009) Food insecurity among homeless and marginally housed individuals living with HIV/AIDS in San Francisco. *AIDS and Behavior* 13: 841–848.