

A Comparative Study of Sources of Health Information and Access to Preventive Care Among Low Income Chronic Drug Users

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Much of health research that examines patterns of health utilization for chronic drug users fails to account for the role of media use and health information seeking. This paper suggests that the nature of drug use is associated with a decreased health orientation that is manifested in media selection and consumption. A comparative analysis was conducted to examine: (1) the differential health perceptions as a function of drug use, (2) the sources of information used, and (3) the relationship between sources of information and primary health care access among chronic users of illicit drugs and socio-demographically similar persons who are not chronic drug users. Results point to both common as well as differential patterns of health information sources. Logistic regression analysis found that medically related sources such as doctors and pamphlets are important sources associated with increased primary care. Important implications are discussed.

Keywords: Sources of Information; Health Information; Chronic Drug Use; Access to Health Care

Introduction

The structure of today's US health care system generates barriers to access for many groups whose members lack the knowledge, skills and resources needed to gain appropriate access. Studies have consistently shown that while drug users have increased health care needs, they are less likely to utilize preventive health services compared with their non-drug using counterparts (Chitwood, McBride, Metsch, Comerford, & McCoy, 1998; Chitwood, McBride, French, & Comerford, 1999;

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French, McGeary, & Chitwood, 2000; Metsch et al., 1999). The chronic drug use lifestyle centers on drug seeking and drug taking, ensuring that other priorities like health care maintenance become far removed (Drumm et al., 2002). The nature of drug use, then, may create disparities in knowledge about and orientation towards disease prevention and health maintenance. This disparity of health information in a society of health care consumerism and limitless access to information raises concerns about whether commonly used methods and channels of dissemination extend to this segment of the population.

Much of the body of research on health care utilization has overlooked the role that health information seeking can play in the health utilization process for high-risk groups such as chronic drug users. This paper will extend this much needed area of health research by using a uses and gratifications approach (Palmgreen, 1984) to understand the relationship between media consumption and access to primary care among chronic drug users as well as a sociodemographically similar group of non-users. The uses and gratifications approach appropriately frames this research by helping to explain how drug users utilize communication channels in their social environment.

Primary Health Care Utilization among Chronic Drug Users

Research on health services utilization patterns among chronic drug users has traditionally focused on individuals who are HIV positive, but some authors have more recently focused on the utilization patterns of drug users in general (Cherpitel, 2003; Falck, Wang, Siegal, & Carlson, 2003; French et al., 2000; Sterk, Theall, & Elifson, 2002; Zavala & French, 2003). Injection drug users (IDUs) living with HIV are less likely to use outpatient services than other chronic drug users (OCDUs-crack or cocaine users), but more likely to have frequent and longer hospitalizations (Celentano et al., 1998; Mauskopf et al., 1994; Solomon, Frank, Vlahov, & Astemborski, 1991; Solomon et al., 1998; Stein, 1990).

Studies have also demonstrated that IDUs have extremely high rates of emergency room (ER) and hospital use comparable to HIV-positive cohorts (Laine, Hauck, Gourevitch, Cohen, & Turner, 2001; Solomon et al., 1991; Selwyn, Budner, Wasserman, & Arno, 1993). Both IDUs and OCDUs experience serious health related problems associated with sustained drug use (Brody, Slovis, & Wrenn, 1990; Hulse, English, Milne, & Holman, 1999; Stein, 1990). Most of the medical problems are preventable and failure to seek preventive care could decrease the chances of identifying a potentially major health problem while it is still manageable and not prohibitively expensive to treat (Chitwood, Sanchez, Comerford, & McCoy, 2001). Therefore, alongside ER and drug treatment services, a more comprehensive and effective approach to health care for chronic drug users would be to promote primary preventive care.

Chitwood et al. (2001), however, note that issues of disease prevention and promoting good health are secondary to the problems associated with the daily struggles that revolve around getting the daily "fix". Drumm et al. (2002) found that chronic drug users were oriented towards avoidance of formal health care because

they associated care with unpleasantness. They reported procrastinating until a situation became acute or they self-treated a medical problem rather than seeking out formal care. In addition, Johnson (2001) found that there was a lack of information about free or reduced-cost health care among this population. Given these findings, it is plausible to assume that chronic drug users are not active information seekers regarding health care. One logical extension to this line of inquiry, then, is to examine how the social context in which chronic drug users function can impact media consumption as it pertains to learning about preventive health information.

Sources of Health Information for Chronic Drug Users

Chronic drug users are a hidden and often hard to reach group, which poses particular questions regarding how to effectively disseminate preventive health messages to this population. Some chronic drug users may create an underground culture in response to systematic distrust of authority and fear of arrest. This strategy may facilitate their drug use, but it also may isolate them from crucial information related to their health and well being (Elwood, Dayton, & Richard, 1995). Research has shown that community media, coupled with interpersonal channels can play an important role for chronic drug users in addressing their health needs via health promotion and disease prevention (Elwood & Atabadi, 1996; Rogers, 1995). For example, Jason, Solomon, Celentano, and Vlahov (1993) found that AIDS prevention messages targeted at IDUs through mass media channels of television, radio, and magazines and newspapers informed them about HIV risk behaviors. In addition, Elwood and Atabadi's (1996) study on 97 heroine and crack cocaine users found that the participants were media consumers who were able to recall drug prevention slogans. However, over 90% of the sample was living in accommodation where print and electronic media were accessible. Comparative differences in media use as a function of drug ingestion route among *HIV negative* drug and non-drug using individuals within the context of varied living arrangements, low income, and reduced health insurance have not been documented.

Given that chronic drug users have increased preventive health care needs, which are accessed at reduced frequencies compared with their non-drug using counterparts we argue that investigating both the context in which drug users function and the media sources that effectively reach chronic drug users with preventive messages would be responsive to the needs of this population. This paper posits the following research questions:

RQ1: How do health perceptions of participants differ as a function of drug use?

RQ2: What are the sources of information that IDUs, other chronic drug users (OCDUs), and sociodemographically similar non-drug users (NDUs) report using to learn about preventive health care?

RQ3: What is the relationship between sources of health information and perceived primary health care access?

Method

Data were collected at the Health Services Research Center of the University of Miami. Neighborhoods in Miami-Dade County where drug use was prevalent were selected as sites for recruitment and screening. A stratified two-stage network-based sample was obtained using targeting sampling methods (Carlson, Jichuan, Siegel, Falck, & Guo, 1994; Watters & Biernacki, 1989) between April 1996 and September 1997. Three sub samples were selected: (1) active IDUs who had injected cocaine or opiates at least weekly for the previous 12 months, (2) OCDUs who never had injected illicit drugs but who had used cocaine and/or other opiates via other routes of ingestion at least weekly for the previous 12 months, and sociodemographically similar persons from the same neighborhood who were not chronic drug users (NDUs), i.e., those who had never used cocaine/and or other opiates.

Participants

Table 1 describes detailed characteristics of the sample by drug use group [1]. A tri-ethnic sample of 1,479 men and women were recruited. Drug use groups consisted of 385 IDUs, 541 OCDUs, and 553 NDUs. Participants were not enrolled in drug treatment programs and 92% reported themselves to be HIV negative. Gender and age differences emerged, whereby IDUs were more likely than NDUs and OCDUs to be male, and IDUs were slightly older than NDUs and OCDUs. No significant differences for ethnicity or education were found. Distribution of legal income showed a similar pattern across all three groups in that over 90% of participants reported earning less than US\$20,000 annually. However, illegal income was disproportionably earned by IDUs and OCDUs rather than by NDUs. The unemployment rate of NDUs' was considerably lower than that of IDUs and OCDUs. One third of IDUs reported living on the streets or in a shelter while rates were significantly higher and comparable for OCDUs and NDUs. NDUs had health insurance for a longer period within the last 12 months than IDUs and OCDUs. Similarly, all three groups reported Medicaid as their predominant source of health coverage.

Procedure

The study was explained to the eligible participants and informed consent was obtained. The Health Services Research Instrument (HSRI) took approximately 1.5 hours to administer. Participants were given a US\$25 honorarium for their participation. Data collected and analyzed for this project were part of a larger research study [2].

Table 1 Sample Profile by Drug Use Group ($N = 1,479$)

	IDUs $N = 385$	OCDUs $N = 541$	NDUs $N = 553$	Total $N = 1,479$
Male* (%)	68.1	53.1	53.5	57.1
Ethnicity (%)				
White	27.5	29.5	31.6	29.8
Black	42.3	36.5	35.3	37.6
Hispanic	30.1	33.8	33.1	32.6
Age** (years, M , (SD))	39.4 (7.77)	36 (7.75)	37.3 (11.53)	37.35 (9.44)
Education (grade)	11.4 (2.47)	10.8 (2.68)	11.2 (2.73)	11.1 (2.67)
HIV negative	83.8	93.4	97.1	92.0
Legal income* (%)				
< \$5,000	59.5	66.1	54.1	59.9
\$10,000–19,999	33.0	30.2	40.3	34.5
\$20,000 and above	7.5	3.7	5.6	16.8
Illegal income*				
< \$5,000	64.2	74.4	98.9	79.8
\$10,000–19,999	23.1	15.4	0.7	13.1
\$20,000 and above	12.7	9.2	0.4	7.4
Employment* (past 12 months)				
0 (not worked)	53.8	46.3	29.1	41.8
1–13 weeks	18.4	23.4	20.8	21.1
14–26 weeks	10.6	9.8	17.4	12.8
27–39 weeks	3.6	5.7	11.0	7.2
40–52 weeks	13.5	14.8	21.7	17.0
Living arrangements*				
Own home/apt	28.3	17.5	30.4	25.1
Other's home/apt	28.1	29.3	17.5	24.6
Hotel	3.6	2.6	1.1	2.3
Boarding house	6.0	3.5	5.2	4.8
Halfway house	0	0.2	0	0.1
Shelter	7.0	8.9	30.6	16.5
On the streets	26.5	36.5	14.6	25.7
Months insured** (M , SD)	4.8 (5.63)	4.4 (5.45)	5.8 (5.48)	5.0 (5.54)
Type of coverage*				
Insured by employer*	3.1	3.5	10.7	6.1
Personal insurance	4.4	2.4	6.5	4.5
Medicaid	35.8	36.5	41.0	38.0
Medicare	4.2	2.6	2.4	2.9
VA coverage	7.0	5.2	4.9	5.5

Note: Percentages do not total 100% due to rounding. * $p < 0.01$: Chi square tests of independence; ** $p < 0.01$: ANOVA tests of mean differences.

Instrumentation

Health perceptions

Participants were asked a series of single item questions asking about their health perceptions within the past 12 months. Specifically, they were asked to rate their

health status (excellent to poor), number of days confined owing to sickness, whether respondent had been in a lot of pain or discomfort (yes/no), and whether respondent had been worried about his or her health (yes/no).

Sources of information

Respondents were asked, "In the past 12 months, where did you get your information about how to prevent illness and improve your health?" Table 3 contains frequency of use across all 12 sources.

Perceived access to primary health care

Respondents were asked, "Is there a clinic, health center, doctor's office, or other place that you usually go to if you are sick or need advice about your health?"

Results

RQ1: Health Profiles

Table 2 contains the health profiles of participants by drug use group for the last 12 months. The NDUs were more likely to report having excellent health than were either of the drug users ($\chi^2(10) = 144.56, p < 0.01$). IDUs significantly reported more days when they were unable to carry out normal activities owing to sickness or injury than OCDUs and NDUs ($F(2, 1,477) = 7.17, p < 0.01$). A larger proportion of IDUs and OCDUs significantly reported experiencing a lot of physical pain or discomfort within the last year ($\chi^2(2) = 59.90, p < 0.01$), and reported that they were worried about their health ($\chi^2(2) = 105.24, p < 0.01$) than NDUs.

Table 2 Health Profile by Drug Use Group ($N = 1,479$)

	IDUs $N = 385$	OCDUs $N = 541$	NDUs $N = 553$	Total $N = 1,479$
Health status* (%)				
Excellent	6.2	12.4	28.6	16.8
Very good	15.1	16.6	22.1	18.2
Good	33.2	32.5	29.8	31.7
Fair	34.3	27.5	16.3	25.1
Poor	11.2	10.9	3.3	8.1
Days unable to carry out normal activities due to sickness or injury (M, SD)**	35.9 (83.43)	23.28 (64.51)	18.56 (63.85)	24.78 (69.98)
Health report* (%)				
A lot of physical pain or discomfort	45.5	34.7	21.7	32.6
Worried about*				
Health	62.1	51.1	29.7	45.9

Note: Percentages do not total 100% because of rounding. * $p < 0.01$: Chi square tests of independence; ** $p < 0.01$: ANOVA tests of mean differences.

RQ2: Sources of Information

IDUs most commonly cited pamphlets obtained from doctors' offices followed by television and friends. OCDUs most often reported pamphlets followed by television and friends. NDUs cited pamphlets followed by doctor and television (see Table 3 for percentages).

Pairwise Chi-square comparisons yielded six sources of information that significantly differed by drug classification type (family, friends, doctor, work, books, and magazines). IDUs reported using family sources more often compared to OCDUs ($\chi^2(1) = 4.14, p < 0.05$) and NDUs ($\chi^2(1) = 15.68, p < 0.01$). Similarly, IDUs cited friends significantly more often than NDUs ($\chi^2(1) = 7.70, p < 0.05$). IDUs also reported magazines significantly more than OCDUs ($\chi^2(1) = 9.4, p < 0.01$). Finally, IDUs cited using doctors significantly more than OCDUs ($\chi^2(1) = 5.99, p < 0.01$).

NDUs cited doctors significantly more than OCDUs ($\chi^2(1) = 18.61, p < 0.01$). Similarly, NDUs identified books significantly more than OCDUs ($\chi^2(1) = 8.16, p < 0.01$). NDUs also cited the workplace as a source of information significantly more than IDUs ($\chi^2(1) = 9.11, p < 0.01$). Finally, NDUs reported using magazines significantly more than OCDUs ($\chi^2(1) = 3.79, p < 0.05$).

RQ3: Association of Sources on Information with Perceived Primary Care Access

Logistic regression analysis (see Table 4) found that primary care access odds were significantly associated with *medically related sources* of information such as physicians/other health care providers ($B = 1.66$), pamphlets in medical offices ($B = 1.07$) and pharmacists ($B = 0.63$). In terms of drug classification, the odds of accessing primary health care for OCDUs' ($B = 0.44$) increased by a factor of 1.55 as

Table 3 Pairwise Comparison of Sources of Information by Drug Use Group

	IDU/OCDU N = 385/553 (%)	<P*	IDU/NDU N = 385/542 (%)	<P*	OCDU/NDU N = 553/542 (%)	<P*
Family	43/36.3	0.05	43/30.4	0.01	36.3/30.4	0.01
Friends	46.9/42.3	ns	46.9/37.8	0.01	42.3/37.8	ns
Doctor	46.6/38.6	0.01	46.6/51.5	ns	38.6/51.5	0.01
Pharmacist	11.5/8.9	ns	11.5/10.5	ns	8.9/10.5	ns
Work	7.3/10	ns	7.3/13.6	0.01	10/13.6	ns
Church	20.3	ns	20.3/17.9	ns	22.1/17.9	ns
Television	54.2/48.2	ns	54.2/48.3	ns	48.2/48.3	ns
Radio	34.1/32.1	ns	34.1/32.2	ns	32.1/32.2	ns
Books	41.7/36.7	ns	41.7/45.2	ns	36.7/45.2	0.01
Newspapers	46.1/40.2	ns	46.1/43.4	ns	40.4/43.4	ns
Magazines	43.5/33.6	0.01	43.5/39.2	ns	33.6/39.2	0.05
Pamphlets	57/53.1	ns	57/55.9	ns	53.1/55.9	ns

Note: *Pearson's chi-square test for independence. IDU = Intravenous drug user, OCDU = Other chronic drug user, NDU = Non drug user, ns = not statistically significant.

Table 4 Logistic Regression Model Predicting the Probability of Having a Primary Health Care Facility

Variable	<i>B</i>	<i>SE</i>	<i>OR</i>	<i>p</i>
Drug classification				
OCDU	0.43	0.16	1.55	0.01
NDU	0.34	0.16	1.40	0.05
Sex				
Female	0.44	0.13	1.55	0.01
Race				
White	-0.95	0.16	0.39	0.01
Hispanic	-0.91	0.15	0.40	0.01
Sources of information				
Doctor	1.66	0.24	5.26	0.01
Pharmacist	0.63	0.32	1.87	0.05
Pamphlets	1.07	0.24	2.93	0.01

Note: Corrected pseudo $R^2 = 0.35$ (Hagle & Mitchell, 1992). The reference categories were IDUs, males, and blacks.

compared to IDUs, while the odds for NDUs ($B = 0.34$) were 1.40 times greater than for IDUs [3].

Discussion

The goal of this preliminary study was to examine the comparative differences in media use, as a vehicle for disseminating health information, among sociodemographically similar drug use and non-use groups. As the uses and gratifications approach argues, it is important to examine media use and effects in the context of what needs it fulfills for a particular audience as those needs will affect source preference and media orientation. Our data suggest that as media consumers, chronic drug users are oriented towards low levels of health information seeking and health consciousness, which affects type of sources utilized for learning about health prevention (Dutta-Bergman, 2004).

Our data identified differential patterns in quality of perceived health status, frequency of physical discomfort or illness, and concern for health between both drug groups and non-users. Yet, despite these health concerns odds of accessing primary preventive care was significantly reduced for both IDUs and OCDUs compared to NDUs. These data are consistent with prior research claiming that chronic drug users have a tendency to avoid health care until absolutely necessary, thereby prioritizing addiction management at the cost of either learning about preventive care and/or seeking needed health care. Furthermore, our data also point to structural barriers for drug users such as higher rates of unemployment, homelessness and reduced health care coverage, which may lead to a reduced level of health information orientation and passive media consumption such as television use (Dutta-Bergman, 2004).

Our data reveal that across all three groups, television continued to be an important source for learning about preventative healthcare. Elwood & Ataabadi's (1996) contention that chronic drug users are "tuned in" appears to apply in this context. Dutta-Bergman (2004) suggests entertainment-education formats for future prevention campaigns using this medium. Future research will need to address the efficacy of this format on learning as well as behavior for chronic drug users.

Differential usage patterns emerged across drug use group. IDUs reported using family, friends, and magazines significantly more often than OCDUs and NDUs. This finding contradicts prior research linking interpersonal networks to higher levels of health consciousness and health information orientation (Dutta-Bergman, 2004). Social network influence is more complex in the drug using context. Social networks can either be protective or destructive (Drumm et al., 2002). Interpersonal networks can offer emotional support, social resources, material resources and health information to drug users. They, however, can also deter individuals from seeking health care or encourage drug use, if they themselves are drug users. Future research will need to examine the type and accuracy of information introduced by such networks.

In contrast, NDUs reported using doctors, books, and magazines significantly more than OCDUs and IDUs. The pattern demonstrates a tendency for IDUs to primarily rely more heavily on familial and social ties whereas persons who are not users rely on standard educational materials acquired outside of the home or social network. These results reflect the social context in which one finds oneself as a result of chronic drug use (Chitwood et al., 1998; Chitwood et al., 2001). In an effort to extend this line in inquiry, our future research will directly assess comparative measures of health consciousness, health information orientation, media preference and motives for media use as this would directly inform programmers on specific media outlets to target.

Logistic regression found that primary health care access odds were positively associated with using the medically related sources of information of pamphlets, doctors, and pharmacists. This is consistent with Benjamin-Garner et al. (2002) who found that low SES groups were more likely to report medical health information sources than more affluent groups. Although seemingly tautological, there is merit to this result. When primary health care was accessed medically related sources were also sought out as health information sources. This suggests that medical professionals are appropriately targeting this high-risk group, and that they are perceived as credible sources for prevention messages. In order to facilitate consistent use of a primary care continued efforts should be made to improve the quality of interpersonal interactions with doctors, pharmacists, and drug using patients. Attractively tailored printed materials should also be made widely available in a variety of medically related settings accessed by drug users.

While this study addresses a subject that necessitates greater attention, certain limitations are noted. First, Internet usage was not measured in this study; future research will include this channel. However, given high levels of homelessness, low

income, and overall orientation towards avoidance of health care we would predict minimal use of Internet. Prior research found that less than 1% of minority and low income groups used the Internet as a health information source (Benjamin-Garner et al., 2002). Second, a non-random sampling method was necessary to assure adequate inclusion of persons in the drug-using subgroups of interest. Therefore, estimates of prevalence and frequency of substance use cannot be generalized to all chronic drug using populations. However, it is important to note that this study used standard recruitment and screening procedures to decrease misclassification of study participants. Additionally, the data relied on self-reports and may be subject to recall bias error or measurement error. Interview techniques, however, were designed to maximize recall so as to minimize this concern (McElrath, Chitwood, Griffen, & Comerford, 1994). Finally, we note that the caution should be taken interpreting correlations among perception of access to primary care and health information sources as temporal order and causality are difficult to impute.

Our goal was to provide an initial understanding of chronic drug users as health care information seekers. Continued work utilizing a uses and gratifications approach to examining the relationship between media motives, health consciousness, and health information orientation will be pursued.

Notes

- [1] Chi square tests of independence and oneway analysis of variance tests were performed to examine differences between groups. Because of page constraints, detailed percentage data were not made available in text but can be referenced in Table 1.
- [2] The HRSI was developed by the Department of Epidemiology's Comprehensive Drug Research Center and included demographic information, a drug use history, and lifetime and 12-month health histories. Included in the health history were questions about perceived access to primary health care and sources of health information. Because of page constraints additional detailed information about recruitment, screening and the HRSI have been published in other journals, please refer to Chitwood, Comerford, and McCoy (2002), and Chitwood et al. (2001).
- [3] Sex and race have traditionally been treated as control variables and we examined differences in our initial univariate analyses to develop the multivariate models. Analysis of the control variables of race and sex found that compared to Blacks, Hispanic and White respondents' odds for accessing primary health care decreased ($B = -0.91$; $OR = 0.39$; $B = -0.95$; $OR = 0.44$, respectively). Females' odds ($B = 0.44$) were increased by a factor of 1.55 when compared to males.

References

- Benjamin-Garner, R., Oakes, M., Meiscke, H., Mehack, A., Stone, E., Zapka, J., Finnegan, J. R., Wallace, L., Taylor, J., & McGovern, P. (2002). Sociodemographic differences in exposure to health information. *Ethnicity & Disease, 12*, 124–134.
- Brody, S. L., Slovis, C. M., & Wrenn, K. D. (1990). Cocaine-related medical problems: Consecutive series of 233 patients. *American Journal of Medicine, 88*, 325–331.

- Carlson, R. G., Jichuan, W., Siegal, H. A., Falck, R. S., & Guo, J. (1994). An ethnographic approach to targeted sampling: problems and solutions in AIDS prevention research among injection drug and crack-cocaine users. *Human Organization*, 3, 279–286.
- Celentano, D. D., Vlahov, D., Cohn, S., Shadle, V. M., Obasanjo, O., & Moore, R. D. (1998). Self-reported antiretroviral therapy in injection drug users. *Journal of the American Medical Association*, 280, 544–546.
- Cherpitel, C. J. (2003). Changes in substance use associated with emergency room and primary care services utilization in the United States general population: 1995–2000. *American Journal of Drug Alcohol Abuse*, 4, 789–802.
- Chitwood, D. D., Comerford, M., & McCoy, V. (2002). Satisfaction with access to health care among injection drug users, other drug users, and nonusers. *The Journal of Behavioral Health Services & Research*, 29, 189–197.
- Chitwood, D. D., McBride, D. C., French, M. T., & Comerford, M. (1999). Health care need and utilization: a preliminary comparison of injection drug users, other chronic drug users, and nondrug users. *Substance Use and Misuse*, 43, 727.
- Chitwood, D. D., McBride, D. C., Metsch, L. R., Comerford, M., & McCoy, C. B. (1998). A comparison of the need for health care and use of health care by injection-drug users, other chronic drug users, and nondrug users. *American Behavioral Scientist*, 41, 1107–1122.
- Chitwood, D. D., Sanchez, J., Comerford, M., & McCoy, C. (2001). Primary preventive health care among injection drug users, other sustained drug users, and nonusers. *Journal of Substance & Misuse*, 36, 807–824.
- Drumm, R. D., McBride, D. C., Metsch, L., Page, J. B., Dickerson, K., & Jones, B. (2002). “The rock always comes first”: Drug users’ accounts about using formal health care. *Journal of Psychoactive Drugs*, 35, 461–469.
- Dutta-Bergman, M. J. (2004). Primary sources of health information: Comparisons in the domain of health attitudes, health cognitions, and health behaviors. *Health Communication*, 18, 273–288.
- Elwood, W. N., & Atabadi, A. N. (1996). Tuned in and turned off: Out-of-treatment injection drug and crack users’ response to media intervention campaigns. *Communication Reports*, 9, 49–59.
- Elwood, W. N., Dayton, C. A., & Richard, A. J. (1995). Ethnography and illegal drug users: The efficacy of outreach as HIV prevention. *Communication Studies*, 46, 261–275.
- Falck, R. S., Wang, J., Siegal, H. A., & Carlson, R. G. (2003). Current physical health problems and their predictors among a community sample of crack-cocaine smokers in Ohio. *Journal of Psychoactive Drugs*, 4, 471–8.
- French, M. T., McGeary, K. A., & Chitwood, D. D. (2000). Chronic illicit drug use, health services utilization and the cost of medical care. *Social Science and Medicine*, 50(12), 1703–1713.
- Hagle, T. M., & Mitchell, G. E., II (1992). Goodness-of-fit measures for probit and logit. *American Journal of Political Science*, 36, 762–784.
- Hulse, G. K., English, D. R., Milne, E., & Holman, C. D. J. (1999). The quantification of mortality resulting from the regular use of illicit opiates. *Addiction*, 4, 221–229.
- Jason, J., Solomon, L., Celentano, D. D., & Vlahov, D. (1993). Potential use of mass media to reach urban intravenous drug users with AIDS prevention messages. *International Journal of the Addictions*, 28, 837–851.
- Johnson, M. O. (2001). Meeting health care needs of a vulnerable population. *Journal of Community Health Nursing*, 18, 35–52.
- Laine, C., Hauck, W. W., Gourevitch, M. N., Cohen, A., & Turner, B. J. (2001). Regular outpatient medical and drug abuse care and subsequent hospitalization of persons who use illicit drugs. *Journal of the American Medical Association*, 285, 2355–2362.

- Mauskopf, J., Turner, B. J., Markson, L. E., Houchens, R. L., Fanning, T. R., & McKee, L. (1994). Patterns of ambulatory care for AIDS patients, and association with emergency department use. *Health Service Research, 29*, 489–510.
- McElrath, K., Chitwood, D. D., Griffen, D. K., & Comerford, M. (1994). Consistency of self-reported HIV risk behavior among injecting drug users. *American Journal of Public Health, 84*, 1965–1970.
- Metsch, L. R., McCoy, H. V., McCoy, C. B., Miles, C. C., Edlin, B. R., & Pereyra, M. (1999). Use of health care services by women who use crack cocaine. *Women and Health, 30*, 37–53.
- Palmgreen, P. (1984). Uses and gratifications: A theoretical perspective. *Communication Yearbook, 8*, 20–55.
- Rogers, E. (1995). *Diffusion of Innovations* (4th Ed). New York: Free Press.
- Selwyn, P. A., Budner, N. S., Wasserman, W. C., & Arno, P. S. (1993). Integrating medical care and drug abuse treatment: Utilization of on-site primary care services in HIV-seropositive and seronegative drug users in a methadone maintained program. *Public Health Report, 108*, 492–500.
- Solomon, L., Frank, R., Vlahov, D., & Astemborski, J. (1991). Utilization of health services in a cohort of intravenous drug users with known HIV-1 serostatus. *American Journal of Public Health, 81*, 1285–1290.
- Solomon, L., Stein, L., Stein, M., Flynn, C., Schuman, P., Schoenbaum, E., Moore, J., & Holmberg, S. (1998). Health services used by urban women with or at risk for HIV-1 infection: The HIV epidemiology research study (HERS). *Journal of Acquired Immune Deficiency Syndrome, 17*, 253–261.
- Stein, M. D. (1990). Medical complications of intravenous drug use. *Journal of General Internal Medicine, 5*, 249–257.
- Sterk, C. E., Theall, K. P., & Elifson, K. W. (2002). Health care utilization among drug-using and non-drug-using women. *Journal of Urban Health, 4*, 586–99.
- Watters, J. K., & Biernacki, P. (1989). Targeted sampling: options for the study of hidden populations. *Social Problems, 36*, 416–430.
- Zavala, S. K., & French, M. T. (2003). Dangerous to your health: The role of chronic drug use in serious injuries and trauma. *Medical Care, 2*, 309–322.