

TRUST AND OTHER CHARACTERISTICS ASSOCIATED WITH HEALTH CARE UTILIZATION BY INJECTION DRUG USERS

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This article examines health care utilization among injection drug users. Based on previous health care models, we identify various attitudes and personal characteristics that have been found to affect health care utilization in the general population, and we examine their effect with this at-risk group. They include trust in physicians, self-esteem, self-efficacy, social isolation, and depression. We examined survey data collected from 374 injection drug users in New Haven, Connecticut. Our findings indicated that trust in physicians significantly increased health care utilization, and depression decreased it. We also found that HIV+ respondents as well as those with health insurance utilized health care more often. These findings broaden the generalizability of existing health care utilization models, and they inform efforts to increase health care among vulnerable populations such as injection drug users.

INTRODUCTION

Precise estimates of the number of injection drug users (IDUs) in the United States are difficult to come by, but a 2001 report by the Substance Abuse and Mental Health Services Administration (SAMHSA, 2001) suggests that there are over 3,000,000 people who inject illegal drugs. IDUs are of special concern because their injection

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practices place them at high risk for HIV, hepatitis, and other health problems (SAMHSA, 2002). In fact, injection drug use now accounts for approximately 25% of all cumulative AIDS cases nationwide and up to 50% of all cases in several northeastern states (State of Connecticut Department of Public Health, 2003; State of New York Department of Health, 2004). IDUs also suffer from very high rates of hepatitis C infection—90% of those who have injected (Centers for Disease Control and Prevention [CDC], 1998; Gershon, 1998). Fatal and nonfatal drug overdose is prevalent among IDUs, and hospital emergency rooms throughout the country receive such overdose cases virtually everyday (Greenblatt, 1997; Sporer, Firestone, & Isaacs, 1996). Emergency room visits involving heroin alone doubled from 33,900 in 1990 to 70,500 in 1996, and some medical experts have declared that the United States is in the midst of another heroin epidemic (Sporer, 1999). IDUs suffer high rates of other problems, including physical and mental illnesses (CDC, 2002) and physical assaults (Chitwood, McBride, Metsch, Comerford, & McCoy, 1998).

Despite their frequent health problems, IDUs use primary health care services only erratically and often only after they are very sick. This exacerbates their condition, and it drives up the cost of offering them appropriate care (Broadhead et al., 2002; Cherubin & Sapira, 1993; Mor, Fleishman, Dresser, & Piette, 1992). IDUs' pattern of avoiding primary care services, and overrelying on emergency rooms and acute care hospitalizations, has been well documented since the 1960s (Jouria, Hensle, & Rose, 1967; Sapira, 1968). In addition, only 10% to 15% of drug users are enrolled at any given time in drug treatment, and dropout rates are high (Bux, Iguchi, Lidz, Baxter, & Platt, 1993; Haverkos, 1991).

In this article we explore why some IDUs use the health care services available to them, such as physical and mental health care and drug treatment, while others do not. Specifically, we identify personal characteristics and attitudes found to be relevant to health care utilization in the general population, and we apply them to IDUs. Previous research has suggested that health care utilization of special populations and subgroups varies widely, and so different groups can require separate analysis. For example, middle aged adult males and people with low incomes use less health care than older females and people with higher incomes (Taylor, Aday, & Andersen, 1975). Likewise, disparities in health care use also exist by race and ethnicity (Rivera, 1996), occupation and differential availability of health care resources (Andersen & Newman, 1973), and seriousness of morbidity (Foets, Berghmans, & Janssens, 1985).

Studying IDUs' health care utilization potentially contributes to general health care utilization models by clarifying the degree to which various factors impact health care utilization among at-risk populations. Furthermore, studying the process of health care utilization among IDUs will likely inform efforts to reduce their health

problems (CDC, 2002; Chitwood et al., 1998) as well as diminish the health risks that IDUs pose to the larger community and ease the strain on emergency and follow-up care systems (CDC, 2002; French, McGeary, Chitwood, & McCoy, 2000).

THEORETICAL BACKGROUND

HEALTH CARE USE MODELS

Various theoretical frameworks inform the general study of health care utilization, and we use two of the best known. The Health Belief Model (HBM) (Rosenstock, 1966) provides perhaps the most basic approach to health care utilization. It relates utilization to individuals' perceptions of their susceptibility to illness, the seriousness of a given illness, the benefits of action weighed against the risks of action, and cues for action—such as symptoms. However, the HBM ignores relevant external factors, such as individuals' ability to pay for health care services and their general access to these services. Moreover, linking health care use to individuals' perceptions of its benefits and risks begs the question of what are these perceptions? In this article, we identify trust in one's physician as a key factor that underlies the perceived benefits of health care use.

In contrast to the HBM, another well-known model of health care utilization, the Behavioral Model of Utilization (BMU) (Andersen & Newman, 1973) links health care use to both individual and structural factors, and in doing so it addresses criticisms of the Health Belief Model. These factors include predisposing personal characteristics, enabling resources, and perceived need. Predisposing characteristics include demographic factors, such as education, occupation, and ethnicity, as well as health-related beliefs, such as attitudes, values, and knowledge of the health care system and services. Predisposing characteristics are not reasons for accessing health care per se, but rather factors that explain variation across individuals in health care use. Enabling resources include access to health personnel and facilities, knowledge of how to access such services, and income or health insurance to pay for such services. Perceived need points to individuals' perceptions of their need for care.

Some social researchers claim that an individual's decision to use health care services depends on a sequence of conditions (Sirois & Gick, 2002). With respect to predisposing characteristics, factors such as health-related attitudes may render enabling resources and perceived need inconsequential. One's occupation, ability to secure health services, and desire to secure health services may largely depend upon various predisposing characteristics with respect to the process of health care utilization, especially attitudes toward health care services.

While the BMU is an overall well-conceptualized, powerful model of health care utilization, it is somewhat ambiguous in regards to "health-related beliefs." Certainly these beliefs include attitudes, values, and knowledge, as stated in the BMU, but

these are rather general terms, and clarification and specification of them would further our understanding of utilization. In this article, we examine several factors that can serve as health-related attitudes and characteristics. These include trust in the physician (Altice, Mostashari, & Friedland, 2001; Anderson & Dedrick, 1990), self-esteem (Abood & Conway, 1992; Kowalski, 1997), self-efficacy (Kowalski, 1997; Grembowski et al., 1993), social isolation (Berkman, 1995; LaVeist, Sellers, Brown, & Nickerson, 1997), and depression symptoms (Knight, Logan, & Simpson, 2001; McBride, Van Buren, Terry, & Goldstein, 2000). We test the impact these factors have on health care use when compared to each other, and, in doing so, we identify the most relevant health related attitudes. This makes health care use models more useful to medical specialists, health policy makers, clinicians, community groups concerned with public health, and researchers in the health care field.

TRUST AND OTHER FACTORS RELATED TO HEALTH CARE UTILIZATION

In this article, we emphasize the importance of trust in physicians for utilizing health care. Beyond issues of health care, various strands of social psychological research have identified trust as a key component of social life. Trust makes social relationships and actions possible (Sztompka, 1999), and it allows for social interactions to proceed on a simple and confident basis (Lewis & Weigert, 1985). Attitudes of trust may extend to institutions, and expectations and attitudes informed by trust affect both future and past interactions, redefining past understandings of events by casting them in a new light (Govier, 1994). Trust also fosters organizational effectiveness and other positive outcomes (Leisen & Hyman, 2001).

The concept of trust is essential for understanding medical care. Past research portrays a trusting patient-physician relationship as the heart of good medical care. It negatively correlates with power differentials between patient and physician and positively correlates with physicians' willingness to share information and discuss the reasons for their decision making (Thom & Campbell, 1997). Trust results in greater satisfaction and patient involvement in medical interactions (Anderson & Dedrick, 1990). Among HIV-infected prisoners, trust predicts inmates' doctor visits, willingness to discuss emotional issues, and amount of time spent with the doctor (Altice et al., 2001).

Injection drug users, in particular, might have less trust in the health care system because of stigmatization (Goffman, 1963), the social construction of "medical" realities (Berger & Luckman, 1966), labeling, and anticipatory fears (Lemert, 1951). Interactions between IDUs and physicians are strongly affected by their relative social statuses and the anticipated stigmatization they may experience. Indeed, some IDUs match the negative and judgmental stereotypic image of a "junkie," i.e., an unkempt person with stained clothes, body odor, and arms bruised with long track

marks. This can lead to uncomfortable interactions with medical professionals who might focus on such stereotypic characteristics rather than the business at hand. Researchers have found that some doctors, in fact, do hold negative perceptions of indigent populations (Chirayath, 2003). Even those IDUs who do not exhibit such characteristics—and many do not—may experience anxiety about being identified and treated as a “junkie.” Persons interacting with IDUs, including health care professionals, may also view themselves as dealing with a dangerous person or at risk for contracting a disease, and so they may give both overt and subtle cues of disgust or avoidance. These cues, in turn, shape IDUs’ reality, leading them to avoid interactions with others based on anticipated or perceived experiences of stigmatization. Social stigma has been identified as a deterrent to health care services among pregnant teenagers (Bergman, 1988), drug users (Regen, Murphy, & Murphy, 2002), those with HIV/AIDS (Petchey, Farnsworth, & Williams, 2000), and those with sexually transmitted infections (Lichtenstein, 2003). Empirical support demonstrates that some doctors do hold different attitudes towards indigent populations (Chirayath, 2003) and people with AIDS (Stankov, 1998). Whether this difference in attitudes actually translates into poorer health care service is a different question; however, what matters here is how the patients think about their treatment. Despite the quality of care they receive from the health care system, those occupying a stigmatized status express concern over managing stigma among health care providers (Regen et al., 2002; Lichtenstein, 2003). Many stigmatized individuals apparently feel they cannot fully trust their health care service providers.

Another factor related to trust is IDUs’ limited health care options. Individuals who can choose their own health care provider are, on average, more trusting of their physician than those who cannot (Thom, Ribisl, Stewart, & Luke, 1999). IDUs, however, who tend to use managed health care or Medicaid, have very limited options for health care providers. This increases their distrust of physicians all the more because options are limited. Due to fewer physician choices, when one is dissatisfied with one’s health care provider, choosing to avoid health care services altogether becomes a more realistic option than for those with numerous health care provider choices.

We note that the attitudes of an individual IDU can affect other IDUs as the individual tells of their experiences and beliefs regarding health care services. Using in-depth interviews with drug users, Regen and colleagues (2002) found that drug users consult their peers for advice, self-treatment, referrals to services, and other information prior to, or instead of, seeking professional health care. Hence, if one person holds a distrusting attitude towards the medical field, it is likely that s/he will promote that attitude to others and perhaps persuade them that the medical field cannot be trusted.

In addition to trust, this article examines several other attitudes and characteristics associated with IDUs' use of medical care, including self-esteem, self-efficacy, social isolation, and depression. Previous studies have found some evidence, though it is mixed, linking high self-esteem and self-efficacy to better health care (Abood & Conway, 1992; Kowalski, 1997). LaVeist and colleagues (1997) found that socially isolated, African American, elderly women are three times more likely to die than those not in social isolation. Depression among drug users correlates with receiving less medical treatment (McBride et al., 2000).

In this article, we test which of these factors have the strongest effect on health care utilization; however, due to data limitations, we do not examine the empirical origins of these factors nor the causal interplay among them. In the discussion section, we review the implications of our findings for such examinations in the future.

METHODS

DATA

We analyzed data collected during baseline interviews for Project REACH, an IRB-approved study of injection drug users' utilization of medical care. Located in New Haven, Connecticut, the project recruited respondents using a respondent-driven sampling mechanism (RDS) (Broadhead et al., 1998; Heckathorn, 1997, 2002). Respondent-driven sampling is a method developed by Heckathorn, Broadhead, and colleagues as a way of effectively reaching hidden populations, such as IDUs (Broadhead et al., 1998). It combines snowball sampling, a convenience sampling method in which future sample members are identified by existing sample members, along with a mathematical model to compensate for the nonprobability aspect of the approach. As applied in this study, several active IDUs were identified and paid to participate in the study. Then, they were offered additional money to recruit other IDUs for the study—the logic being that the people most likely to know the identity of IDUs are other IDUs. The second phase of IDUs was also paid for participating in the study, and they too were offered financial incentives to recruit still other IDUs, and so on. This process was continued until a satisfactory number of respondents were found for the study.

Once recruited, all respondents were read a consent form informing them of the risks and obligations of taking part in the research, as well as the efforts by the project staff to reduce risk and maintain confidentiality. Respondents were also made aware of their obligations and informed that their participation was completely voluntary, and they could discontinue their participation at any time. A trained health educator administered a baseline questionnaire that assessed health and risk behaviors. In total, data were collected from 374 individuals. The community had well-established

HEALTH CARE UTILIZATION AMONG IDUs

public transportation and progressive health care systems; furthermore, two major hospitals were located within a mile of the project site.

The study reported here was conducted in the context of a larger research agenda focusing on reducing harm among injection drug users. While some in society negatively judge or fault IDUs for their situation, the guiding principle here is nonjudgmental harm reduction. Project Reach, and efforts like it, aim to reduce the medical risks of injection drug users through education and support.

MEASURES

The interview and testing procedure lasted approximately one and a half hours and covered health care use, general demographic and related topics (e.g., race, sex, educational level, and health insurance) as well as various social psychological characteristics.

We measured trust using Anderson and Dedrick's (1990) 11-item "Trust in Physician Scale," which measures different facets of interpersonal trust between patient and physician. Sample items include the following: "Your doctor does not really care about you as a person," "If your doctor tells you something is so, then it must be true," and "You feel your doctor does not do everything s/he should for your medical care." Response categories consist of strongly disagree, disagree, uncertain, agree, and strongly agree. Previous studies found this scale to have high reliability, of $\alpha = .90$ and $.85$ (Anderson & Dedrick, 1990), and our study yielded an α of $.88$. Moreover, researchers using the "Trust in Physician Scale" have found support for patient's trust in their physicians as a causal mechanism in health care utilization among the general populace (Anderson & Dedrick, 1990; Thom & Campbell, 1997). Appendix A presents descriptive statistics for all variables, including "Trust in Physician," reporting the range, mean, and type of distribution for each variable. "Trust in Physician" is a continuous variable that ranges from 1 to 5 (with dozens of values in between), and it has a mean score of 3.36.

We measured self-esteem using Rosenberg's (1965) 10-item Self-Esteem Scale. It includes items such as "I feel that I have a number of good qualities," "I feel I do not have much to be proud of," and "I am able to do things as well as most other people." Past research using Rosenberg's Self-Esteem Scale has found that self-esteem predicts life satisfaction (Yetim, 2003), eating disorders in adolescent girls (Button, Sonuga-Barke, Davies, & Thompson, 1996), and is a causal mechanism in adapting to cancer diagnoses (Curbow & Somerfield, 1991). Among our population, the Rosenberg Self-Esteem scale had a reliability α of $.88$.

We measured self-efficacy with Huba and Melchior's (1996) Module 64: Self-Efficacy Form, which is a seven-item scale with items such as "I have little or no

control over the things that happen to me,” and “There is really no way I can solve some of the problems I have.” Our data yielded a reliability alpha of .73.

We measured social isolation with a six-item scale we created that measured social connection to others. Respondents were asked questions such as whether they felt “in tune with other people” and “that you are really not close to anyone.” The reliability alpha for this measure was .79.

Finally, we measured depression with the Center for Epidemiological Studies Depression scale (CES-D) (Radloff, 1977). The CES-D is a 20-item scale in which respondents reported their feelings during the previous week. The feelings probed included “I felt hopeful about the future,” “I felt fearful,” and “I felt that people disliked me.” Past research using the CES-D scale found that changes in physical activity negatively related to symptoms of depression (Motl, Birnbaum, Kubik, & Dishman, 2004), and among people suffering from epilepsy, those who demonstrated symptoms of depression used fewer health resources than those without symptoms (Cramer, Blum, Fanning, & Reed, 2004).

We also measured various other characteristics that previous studies have linked to health care usage. HIV status relates to health care usage (Smith, 1996), and Project Reach measured HIV status with both self-report and blood-test measures. For the purposes of this article, we used solely the self-report measure. As per the Health Belief Model (HBM) (Rosenstock, 1966), peoples’ perceptions of health drives their pursuit of health care, and so we would expect perceived HIV status to have a strong impact on health care usage. Race and ethnicity (Jungwee & Buechner, 1997; Crocker, Luthanen, Broadnax, & Blain, 1999; Parsons, Simmons, Shinhoster, & Kilburn, 1999; Goertzel, 1994; Quimby, 1993; Turner, 1993; Rivera, 1996) were self-reported, and we coded them into four binary categories: White, African American, Hispanic, and other race. Fifty-two percent of the sample was White, 27% were Black, and 16% Hispanic. Sex (Waddell & Floate, 1986; Rivera, 1996) was coded as female = 1, male = 0. Thirty-eight percent of the sample members were female. Education (Knight et al., 2001; Raghupathy, 1996) was measured using a nine-point scale indicating the level of education obtained by respondents, ranging from grade school to post-graduate work. The modal level of education was being a high school graduate (29% of the sample). Health insurance status (Raghupathy, 1996) was measured with a dichotomous variable indicating whether the respondent reported having public or private health insurance. Eighty percent of the respondents had some form of health insurance.

For the dependent variable, we created a health care utilization measure composed of six-items. Respondents were asked the following: “In the past year, was there a time when you felt you needed medical attention, but you did not go for help?” “In the past year, was there a time when you felt you needed mental health care, but

HEALTH CARE UTILIZATION AMONG IDUs

did not go for help?" "In the past year, was there a time when you felt you needed drug treatment but did not go?" "Do you currently have a place that you go to for medical care?" "Do you currently have a person that you go to for medical care?" and "How important is it for you that you go to your scheduled medical appointments?" All response categories were "yes" or "no," except for the question on going to scheduled medical appointments. For that question the response categories were "not important," "important," and "very important." We combined all six variables into one measure of health care utilization that encompasses both perceived need for care and access to it. We did this by standardizing each of the six variables and then adding them together.

We analyze the Project Reach data using ordinary least squared regression (OLS) predicting health care utilization as the outcome variable. OLS is an appropriate method here given the continuous, normal distribution of "Health Care Utilization." We estimated both bivariate and multivariate regression equations. Bivariate equations gave us the total correlation between each independent variable and utilization, regardless of the effects of any other independent variable. Multivariate equations combined independent variables in the same equation to estimate the net effect of each variable on the outcome. If the independent variables were unrelated to each other, we would expect the bivariate and multivariate equations to produce similar results. However, as shown below, there is significant correlation among some of the independent variables, hence the value in examining them using both bivariate and multivariate analyses.

RESULTS

Our analyses tested the empirical relationship between health care utilization and the personal characteristics described above. We begin with simple correlations among the variables, and nearly every single independent variable was significantly correlated with health care utilization. As shown in Table 1, the respondents who most frequently utilized health care services were those with high levels of trust in physicians, self-esteem, and self-efficacy, as well as respondents who were HIV positive, black, had health insurance, and were females. The respondents who least often utilized health care services were those who felt socially isolated, demonstrated symptoms of depression, and who were White or Hispanic. Education was not significantly correlated with health care utilization.

To give a sense of the magnitude of these correlations, we calculated cross tabulations of selected independent variables with health care utilization. Using quartiles, the 25% of respondents who scored highest on physician trust averaged health care utilization scores of .17, while the bottom 25% scored -.17. (Health care utilization is a standardized variable, so its mean is "0," and these differences

TABLE 1
CORRELATION AMONG VARIABLES

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Health Care Utilization	1.00													
(2) Trust	.32*	1.00												
(3) Self-Esteem	.31*	.26*	1.00											
(4) Self-Efficacy	.19*	.18*	.61*	1.00										
(5) Social Isolation	-.29*	-.25*	-.50*	-.38*	1.00									
(6) Depression	-.37*	-.27*	-.68*	-.47*	.63*	1.00								
(7) HIV Positive	.35*	.21*	.10	-.02	-.07	-.12*	1.00							
(8) White	-.12*	-.11*	-.20*	-.08	.11*	.18*	-.19*	1.00						
(9) African American	.23*	.12*	.19*	.15*	-.12*	-.24*	.30*	-.64*	1.00					
(10) Hispanic	-.13*	.01	-.02	-.11*	.01	.06	-.07	-.46*	-.27*	1.00				
(11) Other Race	-.02	-.01	.10	.03	.03	.01	-.05	-.21*	-.12*	-.10	1.00			
(12) Female	.10*	.04	-.07	-.01	-.01	.12*	.07	.14*	-.01	-.17*	-.01	1.00		
(13) Education	.04	-.04	.12*	.18*	-.02	-.06	-.03	.08	.10*	-.25*	.00	-.02	1.00	
(14) Health Insurance	.24*	.10	.01	-.05	.05	-.01	.13*	-.04	.11	.03	-.01	.01	.04	1.00

p* < .05

HEALTH CARE UTILIZATION AMONG IDUs

represent standard deviations away from the mean). The top quartile of depressed respondents averaged utilization scores of $-.24$ while the bottom quartile (i.e., not depressed) averaged $.23$. The HIV+ respondents averaged $.43$, while those not averaged $-.08$. Finally, the respondents with health insurance averaged $.08$, while those without it averaged $-.32$.

As shown in Table 1, many of the independent variables significantly correlated not only with health care utilization, but also with each other. This raises the issue of their net effect on health care utilization—i.e., how much effect on utilization does each variable have once controlling for other variables. To address this issue, we estimated four separate multivariate regression equations predicting health care utilization, and we present the results of these equations in Table 2.

Given the theoretical significance of physician trust, as well as its strong bivariate correlation with health care utilization, our first equation regressed health care utilization on physician trust alone, and trust had a statistically significant and positive effect (unstandardized coefficient $b = .263$, $p < .001$) such that respondents who scored higher on physician trust also utilized significantly more health care. We started with this zero-order regression equation because the measured effect of trust here serves as a baseline with which to gauge if and how much the effect of trust changes when controlling for other variables.

In our second equation, we regressed health care utilization on the five attitudes and characteristics derived from health care models. This allows us to test which of them had the strongest effect on health care utilization, net of the other four. While all five correlated with utilization, only two had significant multivariate regression coefficients. As in the first equation, “trust” positively predicted health care utilization, though here it had a somewhat lower effect size ($b = .189$). Depression significantly and negatively predicted health care utilization ($b = -.195$), such that more depressed sample members utilized less health care.

In our third equation, we added the measure of HIV+ status. Given the profound effect of HIV+ status on any individual’s health care, as well as its strong bivariate correlation with our measure of health care utilization, we wanted to isolate its effect on the theoretical variables in equation 2. “HIV+” significantly and positively predicted health care utilization ($b = .417$), such that individuals with HIV+ status used substantially more health care. When controlling for “HIV+,” the effects of “trust” dropped slightly but remained statistically significant at ($b = .147$), as did the effects of depression ($b = -.176$).

Our fourth and final equation added the remaining control variables, to both test their effects on utilization and how they affected the previously entered variables. Of the new variables, only “health insurance” was statistically significant ($b = .128$), with sample members possessing medical insurance using health care more often.

TABLE 2
UNSTANDARDIZED REGRESSION COEFFICIENTS FOR TRUST PREDICTING HEALTH CARE UTILIZATION
AMONG INJECTION DRUG USERS (IDUs)

Independent Variables	Equation 1	Equation 2	Equation 3	Equation 4
Trust	.263*** (.041)	.189*** (.041)	.147*** (.040)	.142*** (.039)
Self-Esteem		.072 (.078)	.048 (.074)	.054 (.073)
Self-Efficacy		-.022 (.067)	.024 (.064)	-.011 (.064)
Social Isolation		-.041 (.053)	-.046 (.051)	-.061 (.050)
Depression		-.195** (.059)	-.176** (.056)	-.172** (.056)
HIV Positive			.417*** (.070)	.349*** (.072)
African American				.055 (.061)
Hispanic				-.064 (.072)
Other Race				.123 (.131)
Female				.095 (.051)
Education				.029 (.017)
Health Insurance				.128*** (.031)
R ²	.114	.214	.265	.322

Note: N=374

*p<.05; **p<.01; ***p<.001

Standard errors in parentheses.

Though significantly correlated in Table 1, "African American" was not significantly correlated with utilization here. This appears to have happened because, as shown in Table I, the African-American respondents in our sample were more likely to be HIV+, which is associated with increased health care utilization. Controlling for HIV status, then, appears to bring the effect of race to insignificance, suggesting that HIV status serves as causal mechanisms linking race to health care utilization.

HEALTH CARE UTILIZATION AMONG IDUs

As in the third equation, “trust,” “depression,” and “HIV+” remained statistically significant ($b = .142$), ($b = -.172$), and ($b = .349$), respectively.

CONCLUSION

In this article we examined the relationship of health care utilization, trust, and other attitudes and characteristics among IDUs. We analyzed these factors in the theoretical context of general models of health care utilization—the Health Belief Model (Rosenstock, 1966) and the Behavioral Model of Utilization (Andersen & Newman, 1973). In particular, we focused our attention on health-related attitudes and personal characteristics found in these models. We found that health care utilization was highest among the sample members who trusted their physicians, who were not depressed, who were HIV+, and who had health insurance.

Our findings support arguments that trust in physicians and depression are central in explaining health care usage (Andersen & Newman, 1973; Rosenstock, 1966; Andersen, 1995; World Health Organization [WHO], 1972). While other studies have tested the impact of these factors in more general populations, we found them to have a significant effect in a very narrow population for whom health care utilization has profound implications. This supports the empirical generalizability of these health care models. Furthermore, it highlights the need for health policy makers, clinicians, community health groups, and health administrators to attend to these factors in making health-related decisions for vulnerable populations such as IDUs. As such, the testing of these health related attitudes and characteristics both clarifies health care models and informs their practical application.

Our findings also point to a promising area of future research; namely, what are the antecedents of these predictors of health care utilization? In this article, we have treated them as exogenous to the causal processes due to data limitations. Lacking longitudinal data, we were unable to examine the causal antecedents of physician trust, depression, and other predictive factors. Nevertheless, a more articulated model of health care utilization among IDUs would account for the causes of these causes. As shown in Table 1, trust and depression were both correlated with other variables. The respondents who most trusted their physicians also had more self-esteem, less social isolation, and less depression. They were also more likely to be HIV+ and Black and less likely to be White. The study members exhibiting the most depression also had low self-esteem and self-efficacy and high social isolation. They were more likely to be White and female and less likely to be Black.

In looking at multiple attitudes and characteristics, we found that both trust and depression had significant effects on health care utilization. This matters because previous studies of such processes have tended to analyze only one or two variables such as self-esteem (Abood & Conway, 1992; Kowalski, 1997), self-efficacy

(Kowalski, 1997; Grembowski et al., 1993), social isolation (Berkman, 1995; LaVeist et al., 1997), or depression (McBride et al., 2000; Cramer et al., 2004). However, these factors are both dynamic and interrelated, and so analyzing them separately may yield different results than analyzing them in the context of other factors. Examining multiple factors identifies the relative net strength of each factor, and it specifies the most predictive health related attitudes.

We found high rates of health care utilization among HIV+ drug users. This fits with health care models because HIV+ individuals perceive themselves, and rightly so, as having a severe health problem and so seek high levels of medical attention (Morrison, Elliot, & Gruer, 1997). As such, any initial suspicion or mistrust they feel toward the medical community is mitigated, perhaps substantially, by their dire medical need.

We also found high rates of utilization among those respondents with health insurance, and we believe this finding is open to two possible interpretations. Most obviously, health insurance removes the financial barriers to health care, and so IDUs with health insurance are more likely able to afford to visit the doctor. This resource perspective fits within the Behavior Model of Utilization. Another possibility, however, is that those who do qualify for and obtain health insurance are also more likely to make the effort to seek out health care. This is not to say that lacking health insurance is the result of a lack of motivation; however, acquiring and retaining health insurance requires initiative and some level of personal organization. Hence, although simply having health insurance makes receiving health care more likely, being able to obtain and manage one's health insurance also reflects an ability important in managing health care services. We see both suggestions as possible and useful in understanding why those with health insurance significantly use health care services more than those without health insurance.

Somewhat surprisingly, neither sex nor race had a net effect on health care utilization, and we might best understand these null findings with reference to the social psychological frameworks discussed in the introduction. In the general population, sex and race represent master statuses that powerfully influence how people experience and interpret the social world, and, correspondingly, people often suffer discrimination on the basis of these characteristics. However, the profound stigma of being an IDU may override the impact of these other statuses. As such, IDUs may experience the world more from the perspective of IDUs than as members of a particular race or ethnicity. Therefore, for many of the IDUs in our study, sex and race may become secondary in their life experience.

Subsequent research with IDUs' health care utilization needs to examine variation in health care use by length of IDU status, which would be useful in understanding the dynamic process of health care utilization, and the process by which some

HEALTH CARE UTILIZATION AMONG IDUs

IDUs learn to avoid health care personnel. We speculate that trust in physicians could decrease with length of IDU status because of the increasing amount of time spent occupying a stigmatized status, greater number of negative encounters, and increasing opportunities to interpret others' actions and feelings through a negative lens. However, finding a doctor who accepts one's IDU status could also facilitate a trusting relationship, resulting in greater health care use. In either case, the need for future research on health care use among active IDUs with respect to length of IDU status demands attention.

The findings discussed above shed light on attitudes related to IDUs' health care use. These findings inform the practices of the health care community that treat these high-risk individuals, and they also give a sense about the relative impact of each attitudinal factor on health care utilization; in fact, we found that attitudes can have a greater impact than many demographic characteristics. Therefore, health care professionals and health policy makers need to consider social psychological factors when encountering IDUs in the medical field.

APPENDIX A: DESCRIPTIVE STATISTICS OF VARIABLES

Variable	Range	Mean	Variable Distribution
(1) Health Care Utilization	-1.4 to .9	0.00	Continuous, standardized
(2) Trust	1 to 5	3.36	Continuous
(3) Self-Esteem	1 to 4	2.68	Continuous
(4) Self-Efficacy	1 to 4	2.85	Continuous
(5) Social Isolation	0 to 3	1.51	Continuous
(6) Depression	0 to 3	1.28	Continuous
(7) HIV Positive	0 to 1	.16	Dichotomous
(8) White	0 to 1	.52	Dichotomous
(9) African American	0 to 1	.27	Dichotomous
(10) Hispanic	0 to 1	.16	Dichotomous
(11) Other Race	0 to 1	.40	Dichotomous
(12) Female	0 to 1	.38	Dichotomous
(13) Education	1 to 9	3.50	Ordinal
(14) Insurance	0 to 1	.80	Dichotomous

N = 367 - 377

NOTE

¹ The CES-D is a scale of depression symptoms, not clinical depression (Radloff, 1977).

ACKNOWLEDGMENTS

This research was supported by a grant R01 DA12112 from the National Institute on Drug Abuse, Rockville, Maryland (Robert Broadhead, Principal Investigator). We would like to thank Douglas D. Heckathorn for his contribution in conceptualizing the larger study from which the data for this analysis were drawn and Yael van Hulst for directing the day-to-day operations of the intervention project. We also wish to thank the staff members of Project REACH and the numerous research participants whose cooperation made this research possible.

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