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The Influence of Health Locus of Control on the Patient-Provider Relationship

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Abstract

The physician-patient relationship is important to the successful delivery of health care. Health locus of control (HLOC) of the patient, the extent to which individuals attribute their health to their own actions or to external agents, may affect the patient-provider relationship. This study examined the influences of HIV and HLOC on trust in physician among a population of predominantly minority women and their family members. Powerful others HLOC demonstrated a positive relationship with trust in physician and chance HLOC had a negative relationship with trust in physician. HIV moderated both of these relationships.

Keywords

health locus of control; physician trust; patient-provider relationship; HIV

The physician-patient relationship has been well documented as an important factor in the successful delivery of health care (e.g. Kerse, Buetow, Mainous, Young, Coster, & Arroll, 2004; Strasser, 1992; Taylor, 2009). Satisfaction with one's physician, continuity of care, agreement between the patient and physician on the identification and management of the medical problem, trust in one's physician, and belief in the physician's competence are all important components of the patient-provider relationship (Christakis, Mell, Wright, Davis, & Connell, 2000; Howie, Heaney, Maxwell, & Walker, 1999; Vedsted, Lauritzen, & Olesen, 2002). For those with chronic illness, the patient-provider relationship has demonstrated particular influence on treatment adherence. Patients who have poorer relationships with their health care providers are less likely to adhere to treatment regimens (O'Brien, Petrie, & Raeburn, 1992; Piette, Heisler, Krein, & Kerr, 2005; Roberts, 2002; Schneider, Kaplan, Greenfield, Li, & Wilson, 2004; Taylor, 2009) and are less likely to return for future medical services (Ross & Duff, 1982; Ware, Davies-Avery, & Stewart, 1978). The purpose of this study is to investigate the relationship between health locus of control (HLOC) and the patient-provider relationship.

Health locus of control, the extent to which individuals attribute their health to their own actions or to environmental circumstances and powerful external agents, is a patient characteristic that has not been closely studied with respect to the physician-patient relationship. An internal locus of control suggests that positive health results from one's own doing, willpower or sustained efforts. In contrast, an external locus of control is marked by belief in the influence of fate, powerful others, or supernatural occurrences upon one's health (Wallston, Wallston, & Devellis, 1978). Measures of HLOC differentiate between 'powerful others HLOC', or the belief that the actions of influential individuals outside oneself affect health, and 'chance HLOC' which suggests the influence of concepts such as fate.

Wallston and Wallston (1989) suggest that powerful others HLOC may influence an individual's orientation toward his or her health care provider. The authors state, "as doctors and nurses are often perceived by patients as authority figures, and as they usually act accordingly, it is logical to assume that people endorsing [powerful others HLOC] beliefs would also espouse authoritarian attitudes" (p. 73). In a study by Helmes, Bowen and Bengel (2002), powerful others HLOC was a positive and significant predictor of trust in physician among women considering genetic testing for breast cancer vulnerability. The influences of chance health locus of control and internal health locus of control on trust in physician are more difficult to anticipate as research has not been done in this area.

One measure of the patient-provider relationship is trust. Not surprisingly, characteristics of the relationship itself, such as the length of the relationship, can influence a patient's trust (Kao, Green, Davis, Koplan, & Cleary 1998). Characteristics of the physician such as interpersonal skills, technical competence and even demographic factors like race or ethnicity can influence how much trust an individual has for his or her provider (Thom, 1997; Cunningham, Sohler, Korin, Gao, & Anastos, 2007). Patient characteristics are also important. Some studies show individuals from minority populations report less satisfaction and trust in their physicians than their majority counterparts (Doescher, Saver, Franks, Fiscella, 2000; Halbert, Armstrong, Gandy, & Shaker, 2006; Jacobs, Rolle, Ferrans, Whitaker, & Warnecke, 2006). The individual's disease status and disease severity have influence as well. Cunningham, Sohler, Korin, et al. (2007) found that individuals with HIV had significantly higher trust in their physicians than their HIV-negative counterparts. Among rheumatoid arthritis and systemic lupus erythematosus patients, increases in disease activity were associated with significant increases in trust in physician (Berrios-Rivera, Street, Popa-Lisseanu, Kallen, Richardson, Janssen, et al., 2006). Finally, family context may influence how much trust an individual has toward his or her physician. An individual who comes from a family that demonstrates acceptance of health care services and trust in health care professionals is more likely to espouse those same characteristics when compared with someone from a family where health care is regarded with uncertainty or distrust. For instance, Cardol, Groenewegen, Spreeuwengberg, Van Dijk, Van Den Bosch, & De Bakker (2006) found that socialization in families accounts for a large amount of variation in use of health care services. Families provide a unique context in which to view health attitudes.

The present study examined the relationships between HLOC and trust in physician among a sample of predominantly minority women with HIV and their family members. The research was guided by two hypotheses: (1) powerful others HLOC is a significant and positive predictor of trust in physician, and (2) HIV status moderates the relationship between powerful others HLOC and trust in physician. Because little research has been done in this area, chance health locus of control and internal health locus of control were included in all analyses in an effort to better understand the relationships between all three dimensions of health locus of control and trust in physician, as well as the potential influence of HIV on these relationships. Illness burden was included in the analysis as a control variable. Individuals dealing with multiple chronic diseases may have more contact with their physicians and as a result may be more likely to report high levels of trust (Kao, Green, Davis, Koplan, & Cleary, 1998).

Methods

This study represents a secondary analysis of baseline data from a randomized clinical trial designed to test the efficacy of a family-based psychological intervention on medication adherence for women with HIV. In the parent study, women with HIV were recruited from drug treatment and HIV centers in South Florida (Dade and Broward counties). Study eligibility required the woman to be HIV seropositive and one of the following: prescribed antiretroviral medication, viral load above 100,000 or CD4 T-cell below 350, or diagnosis of an AIDS-defining disease. The woman also needed to be at least 18 years of age, meet the DSM-IV criteria for substance use diagnosis within the previous year, and have cocaine as a primary or secondary drug of abuse. Recruitment for the study was from 2003 until 2007. An institutional review board oversaw the protocol.

Baseline assessments were administered to 117 index women and 207 family members. For the index women, the mean age was 43.2 years (range: 23–63). Forty-three percent of the women were never married and 26.6% were living with a partner. Half of the index women had less than a high school education (51%), 87% were unemployed and 76% were on public assistance.

Family members in the study were identified using a Family Identification Form (Mitrani et al., 2009). Family members were defined as household members and other individuals who had a reciprocal or non-reciprocal influence on the index woman. Family was defined broadly to include anyone who was a substantive source of support for the woman and included individuals who did not physically live with the woman. Family members were inclusive of blood relatives and close family friends and were identified by their relationship to the index woman. There were 651 family members identified by the women in this study and of these, 581 were eligible to participate. Family members were not eligible if they were boarders, casual partners, children under age 6, wards of the state, children with whom the woman did not meet month or individuals the woman did not want invited to participate. Approximately 38% of eligible family members enrolled in the parent study. Mitrani, et al. (2009) reported household membership and relationship type were significant predictors of enrollment. For example, subgroups of family had higher rates of participation such as partners/spouses(67.5%) and friends (61.7%). The challenges of engaging family members

in a research study are significant. A family member's decision to enroll is influenced by his/her relationship with the index woman, the individual's own comfort level with participating in research, his/her level of knowledge of problems experienced by the index woman, and his/her level of support for the index woman (Mitrani et al., 2009).

Family members included partners (26%), friends (16%), adult children (18%), siblings (11%), spouses (5%), mothers (4%), extended family (15%), ex-spouses (<1%), church officials (<1%) and other (3%). Family members had a mean age of 40.8 years (range: 18–78) and 53% of the family members were female.. Forty-five percent of family members had less than a high school education, 73% were unemployed at the time of assessment, and 50% were on public assistance. Participants across the entire sample identified themselves as one or more of the following: African-American (84%), Hispanic (13%), White (10%) and American Indian or Alaska Native (2%).

Measures

Trust in Physician—The Trust in Physician Scale (Anderson & Dedrick, 1990) is an 11-item self-report instrument developed to assess an individual's trust in his or her physician. The measure uses a five point scale ranging from “Strongly Disagree” (1) to “Strongly Agree” (5). Higher scores indicate higher levels of trust in physician. Estimated reliability for total physician trust was 0.82.

HLOC—The Multidimensional HLOC Scale is an 18-item self-report questionnaire designed to assess an individual's preferred control orientation with respect to health. Scores were obtained for three dimensions of HLOC: internal, chance and powerful others. The powerful others items specified ‘others’ to be primarily health professionals. Subscale scores were obtained by summing across items associated with those subscales appropriate for Form A identified by Wallston, Wallston and DeVellis (1978). The estimated reliability was 0.74 for internal HLOC, 0.66 for chance HLOC and 0.72 for powerful others HLOC.

HIV—HIV status of family members was ascertained using a demographic form question regarding the presence of nine health conditions: asthma, cancer, diabetes, heart disease, hypertension, HIV, injury due to violence, kidney disease and sickle-cell anemia. The additional health conditions were included in the question aimed at ascertaining HIV status in order to mask the study focus of HIV for family members who may not be aware that the index woman in their family was HIV-positive. The additional health conditions were those anticipated to have some prevalence in a minority, urban population. Illness burden was measured as a total count of yes responses to all chronic illnesses for each individual. Table 1 provides the proportion of index women and family members who reported each condition.

Analysis Plan

All analyses were done using Mplus version 5.2 (Muthén & Muthén, 1998–2007). Multilevel modeling techniques were used to account for dependencies in the data among individuals from the same family (Raudenbush & Bryk, 2002). Control variables included illness burden, HIV status, gender, African-American descent, internal health locus of

control and chance health locus of control. Raw scores were used for variables at the person-level and the family mean of each variable was introduced at the family-level. Interaction terms were created at the person-level from raw scores and the family mean of the interactions was introduced at the family-level. This specification resulted in within-level regression coefficients that were not confounded by between-level effects (Kreft, de Leeuw, & Aiken, 1995). Between-level effects were estimated and tested using the *model constraint* command in Mplus (Muthén & Muthén, 1998–2007).

Results

Table 2 provides the means and standard deviations for the variables of interest. Individuals with HIV had significantly higher levels of trust in physician ($\beta = 2.18$, $SE = 1.11$, $p = .05$) and powerful others HLOC ($\beta = 2.32$, $SE = 0.69$, $p < .01$) when compared with individuals who did not have HIV.

Multilevel Multiple Regression Analysis

The first model was a multiple regression analysis in which trust in physician was regressed on the four control variables and all three HLOC subscales. At the person-level, powerful others HLOC exhibited a positive and significant ($\beta = 0.66$, $SE = 0.19$, $p = .001$) relationship with trust in physician. At the family-level, powerful others HLOC ($\beta = 0.60$, $SE = 0.15$, $p < .001$), chance HLOC ($\beta = -0.45$, $SE = 0.17$, $p = .008$) and internal HLOC ($\beta = 0.43$, $SE = 0.17$, $p = .010$) were all significant predictors of trust in physician. The estimated variance accounted for at the person-level was approximately 23%. These findings suggest that as an individual's level of powerful others HLOC increases, so does the individual's level of trust in physician. Similarly, as the mean level of powerful others HLOC and internal HLOC increases across members of a family, individuals within that family report higher trust in physician. As the mean level of chance HLOC increases across members of a family, individuals within that family report lower levels of trust in physician.

Moderating Effect of HIV

In the second analysis, HIV status was modeled as a moderator of the relationships between HLOC (internal, chance and powerful others) and trust in physician. The full multiple regression analysis included all control variables, direct effects for all three HLOC variables, and interaction terms in which HIV was combined with internal, chance and powerful others HLOC (see Table 3). Results at the person-level demonstrated significant direct effects on trust in physician for powerful others HLOC ($\beta = 1.16$, $SE = 0.25$, $p < .01$) and chance HLOC ($\beta = -0.71$, $SE = 0.24$, $p < .01$). HIV status was a significant moderator of the relationship between powerful others HLOC and trust in physician ($\beta = -0.80$, $SE = 0.33$, $p = .01$) as well as the relationship between chance HLOC and trust in physician ($\beta = 0.73$, $SE = 0.26$, $p < .01$). Considering the sum of the direct and interaction effects, these findings suggest that powerful others HLOC and chance HLOC exert weaker influences on trust in physician among individuals with HIV. In fact, separate analyses showed that powerful others HLOC and chance HLOC had no significant effect on trust in physician for HIV+ individuals.

At the family-level, the family mean of the interaction of HIV and chance HLOC was significantly related to individual trust in physician ($\beta = -0.98$, $SE = 0.38$, $p = .01$). The direct effect of the family mean of chance HLOC was not significant. This mean interaction term represents the contribution of HIV+ family members to the family mean of the chance HLOC and suggests that the more HIV+ family members endorse chance HLOC items, the lower the trust in physician score will be for an individual from that family. There were no other significant effects at the family level. The estimated proportion reduction in variance at the person-level as a result of the addition of the terms interacting HIV and HLOC was 7.9% (Raudenbush & Bryk, 2002).

Discussion

The purpose of this study was to determine whether individual differences in trust in physician were explained by powerful others HLOC, and whether HIV status moderated the relationship between powerful others HLOC and trust in physician. Powerful others HLOC was hypothesized to have a significant relationship with trust in physician, and HIV was expected to moderate this relationship. Powerful others HLOC exhibited a positive and significant direct effect on trust in physician. The relationship between powerful others HLOC and physician trust was moderated by HIV status such that powerful others HLOC was not a significant predictor of trust in physician for individuals with HIV.

Powerful others HLOC is a belief that powerful, external individuals control one's health including physicians, nurses and other medical professionals. The idea that individuals who endorse beliefs that health professionals control their health are likely to have feelings of trust toward physicians is consistent with the very limited research in this area. This study also demonstrated that feelings of trust toward the physician were not influenced by powerful others HLOC beliefs for individuals with HIV. This suggests that for HIV+ individuals, something beyond health locus of control beliefs influences how much trust they have for their physician. Within this study, none of the expected covariates (race/ethnicity, gender, or number of co-morbidities) provided an alternative explanation. As has been suggested by other research, the characteristics of the physician or of the treatment parameters may carry more weight than the patient's beliefs about locus of control. The medical protocols for HIV+ individuals typically include close monitoring and are often linked to additional support services which might serve to increase patient trust and have the effect of diminishing the influence of locus of control.

Chance HLOC was also a significant predictor of trust in physician in this study. Logically, individuals with higher chance beliefs about their health would not see any person or group having a large influence on their health. This belief might impede the development of trust of health care providers. As with powerful others HLOC, this relationship was not significant in the presence of HIV disease at the person-level. However, the significant interaction of chance HLOC and HIV at the family-level implies that individuals who come from families where HIV+ family members highly endorse chance HLOC beliefs have lower trust in physician. This finding reiterates the potential importance of a family effect when considering these constructs. Overall, the results suggest a need to explore additional determinants of physician trust among individuals with HIV.

As with all studies, there are limitations to the findings reported here. First, illness burden was neither a focal predictor nor outcome in the primary study and was therefore crudely assessed. Second, this sample is from a clinical trial and composed of volunteers, rather than a random sample of families. The sample is primarily minority, urban and low-income. In addition, because of the design of the parent study, there is an adult HIV+ female in each household and results need to be interpreted in light of this family structure. Finally, although the Multidimensional Health Locus of Control Scale is a widely accepted measure, the reliability of the chance subscale is slightly below the recommended value of $\alpha=.70$ (Nunnally & Bernstein, 1994). Despite these limitations, this study provides an initial step toward further research into the effects of HLOC on the patient-provider relationship. Given the importance of this relationship for individuals with chronic disease, future studies that extend this research to include health outcomes may be worthwhile.

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Table 1

Illness Burden of Index Woman and Family Members

	Index Women	Family Members
HIV	100%	36%
Asthma	27%	19%
Hypertension	18%	29%
Diabetes	5%	13%
Kidney Disease	6%	2%
Heart disease	4%	6%
Cancer	4%	1%
Sickle Cell	NA	3%
Injury Due to Violence	NA	11%

Table 2

Means and Standard Deviations for Variables of Interest

	Total (N=324)	HIV+ (N=190)	HIV- (N=134)
Internal HLOC (range: 7–30)	22.53 (3.84)	22.83 (4.13)	21.31 (3.84)
Chance HLOC (range: 6–30)	17.29 (4.38)	17.03 (4.46)	17.32 (3.89)
Powerful Others HLOC* (range: 7–30)	20.43 (4.21)	21.06 (4.01)	18.44 (4.18)
Trust in Physician** (range: 23–55)	43.63 (6.80)	44.37 (6.57)	41.30 (6.54)

* Difference by HIV status significant with $p < .05$

** Difference by HIV status significant with $p < .01$

Table 3

Results of Multilevel Regression Model Predicting Trust in Physician

	Variable	β (SE)
Level 1: Individual	HIV	0.38 (5.15)
	Illness Burden	-0.21 (0.47)
	Female	1.91 (1.03)
	African-American	1.60 (1.86)
	Internal HLOC	0.03 (0.24)
	Powerful Others HLOC	1.16 (0.25) **
	Chance HLOC	-0.71 (0.24) **
	HIV* Internal HLOC	0.14 (0.27)
	HIV* Powerful Others HLOC	-0.80 (0.33) *
	HLOC	
	HIV* Chance HLOC	0.73 (0.26) **
Level 2: Family	HIV	4.63 (3.07)
	Illness Burden	0.50 (0.91)
	Female	5.01 (5.05)
	African-American	-2.07 (1.13)
	Internal HLOC	0.21 (0.28)
	Powerful Others HLOC	0.37 (0.23)
	Chance HLOC	0.28 (0.33)
	HIV* Internal HLOC	0.19 (0.29)
	HIV* Powerful Others HLOC	0.46 (0.29)
	HLOC	
	HIV* Chance HLOC	-0.98 (0.38) *

* indicates $p < .05$ ** indicates $p < .01$