MINI-SYMPOSIUM ON THERAPEUTIC ADHERENCE

Cultural Issues in Medication Adherence: Disparities and Directions

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Adherence to medications is dependent upon a variety of factors, including individual characteristics of the patient, the patient's family and culture, interactions with healthcare providers, and the healthcare system itself. Because of its association with worse outcomes, poor medication adherence is considered a potential contributor to disparities in health outcomes observed for various conditions across racial and ethnic groups. While there are no simple answers, it is clear that patient, provider, cultural, historical, and healthcare system factors all play a role in patterns of medication use. Here, we provide an overview of the interface between culture and medication adherence for chronic conditions; discuss medication adherence in the context of observed health disparities; provide examples of cultural issues in medication adherence at the individual, family, and healthcare system/provider level; review potential interventions to address cultural issues in medication use; and provide recommendations for future work.

KEY WORDS: medication adherence; healthcare delivery; cultural competence; disparities.
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INTRODUCTION

Recent estimates indicate that over half of all persons in the United States live with a chronic health condition of some kind, and more than one in four have two or more chronic conditions.[1] Over the past several decades, increasing emphasis has been placed on self-management of chronic health conditions,[2] thereby increasing patient and family responsibility for the coordination and implementation of many aspects of disease management.[3] Depending on the condition, self-care instructions can range from relatively simple, such as a taking a medication daily for preventive purposes, to exceedingly complex, such as taking multiple medications as prescribed, monitoring symptoms, communicating with healthcare providers about symptoms and/or side effects, and making lifestyle modifications in areas such as diet, exercise, and sleep.[4]

Along with the shift toward self-management of chronic health conditions, the demographic composition of the United States has become increasingly diverse. Population projections indicate that by 2060, the proportion of the current majority group in the US (non-Latino white) will have shrunk from 62% of the population to only 44%.[5] The cultural diversity of our communities is also affected by the increasing number of first-generation immigrants. Approximately 17% of the US population is expected to be foreign-born by 2040[6]; in Canada, similar projections show that more than one quarter of its population (25–28%) will be foreign-born by 2031.[7] Given these trends, healthcare providers must be increasingly mindful of how their recommendations for disease management intersect with the needs and beliefs of the demographic groups they serve.

In this paper, we provide an overview of the interface between culture and medication adherence for chronic conditions. We acknowledge that adherence may comprise many behaviors in addition to medication use; however, prescription medication use is a core component of management across multiple conditions, and provides a useful lens through which to assess the impact of race, ethnicity, and culture on self-management. We discuss medication adherence in the context of observed health disparities, and then provide examples of cultural issues in medication adherence at the individual, family, and healthcare system/provider level. We conclude with a review of potential interventions to address cultural issues in medication use, and provide recommendations for future work.

FACTORS AFFECTING MEDICATION ADHERENCE

Adherence has been defined as the "extent to which a person's behavior (in terms of taking medications, following diets, or executing other lifestyle changes) coincides with the clinical prescription."[8] Adherence to prescribed medications represents a complex series of decisions and behaviors,[9] and optimal adherence involves a number of necessary components. This process has been described in three phases.[10] Healthcare providers must prescribe a medication and clearly communicate its utility and appropriate use to the patient and family, and patients must then fill the prescription (initiation). Patients must then take the prescribed medication according to directions (implementation), and continue use as long as indicated, without premature termination (discontinuation).[10]

Adherence can be measured by self-report, by objective monitoring devices (e.g., medication event monitoring systems[11]), or by indirect methods such as bioassay (e.g., viral load).[12] Regardless of monitoring method, abundant evidence reveals that medication adherence is suboptimal across

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diseases and demographic groups (see Stirratt et al. in this collection[13]), and the availability of cross-culturally validated measures of adherence is limited. Adherence tends to be higher in diseases with greater perceived threat to health, such as HIV/AIDS and cancer, and lower for chronic conditions (e.g., asthma, chronic obstructive pulmonary disease [COPD], diabetes[14]).

A number of studies have examined medication adherence across different racial and ethnic groups and among groups of varying socioeconomic (SES) status. Medication adherence rates are typically lower among patients with lower SES and with racial/ethnic minority backgrounds.[15,16] These findings have been replicated in studies of medications for a number of different conditions, including antiretroviral medications for HIV/AIDS,[17] antihypertensive medications,[18] oral antidiabetic medications,[19] and controller medications for asthma.[20] Because of its association with poorer outcomes, poor medication adherence is considered a potential contributor to disparities in health outcomes.

ADHERENCE IN THE CONTEXT OF HEALTHCARE DISPARITIES

Population-level studies have identified numerous factors that may contribute to differences in self-management, health outcomes, or access to care among disadvantaged groups.[21–23] Healthcare disparities are pervasive and persistent across many different illnesses, and represent a major cost to the healthcare system.[24] Accordingly, disparities in healthcare services and outcomes have been identified as an important issue by the Institute of Medicine.[25] Patient, provider, cultural, historical, and healthcare system factors likely all play a role in this phenomenon (Fig. 1). In the section that follows, we provide a brief review of a number of key factors at the individual, family, and healthcare system levels that may contribute to disparities in medication use by race/ethnicity.

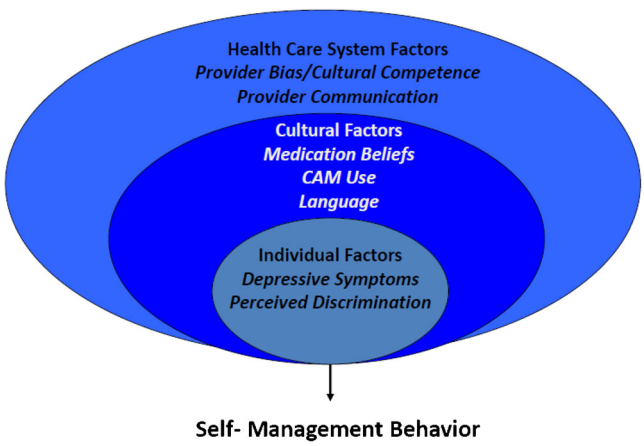

Figure 1 Interaction of factors across multiple levels predict disease management behavior and underlie disparities in healthcare access and health outcomes.

Individual Factors

Perceived Discrimination and Depression. Patient perceptions of acceptance and support, or lack thereof, from their healthcare providers and the overall system of care may set the stage for how well self-management recommendations are accepted. Perceived discrimination, typically measured by self-report, has been found to be related to lower adherence among minority groups. One large survey study of survivors of stroke and transient ischemic attacks among underserved communities identified perceived discrimination by the healthcare system as a predictor of poor medication adherence.[26] In a study of older adolescents and adults with sickle cell disease, patients who reported experiences of discrimination within the healthcare system were less likely to take medications that had been recommended to them by their healthcare providers.[27] Similar results have been documented among adults with HIV/AIDS,[28] indicating that perceived discrimination may play an underlying role in acceptance and use of medications across disease conditions.

Self-reported symptoms of depression have been frequently studied in relation to self-management and adherence, and have been associated with lower medication adherence across several diseases and across the age span.[29–31] Among adults, depressive symptoms have been correlated with poor adherence to anti-epileptic medications,[32] oral medications for cancer,[30] and controller medications for persistent asthma.[31]

Low income, limited insurance coverage for outpatient medications, and higher out-of-pocket costs may also contribute to lower medication adherence.[33] This phenomenon has been termed "cost-related nonadherence," and may disproportionately affect individuals from elderly and minority populations with limited incomes.[34,35]

Clearly, a constellation of adverse factors including depressive symptoms, increased stress related to difficult life circumstances (such as poverty or unsafe neighborhoods), and perceived discrimination, which may be more common among culturally diverse patients, likely work together to increase the risk for poor medication adherence. For example, some evidence suggests that the presence of depressive symptoms and perceived discrimination may have a synergistic effect on adherence. In one study, perceived discrimination was associated with lower adherence to antihypertensive medications among African Americans; this relationship was related to increased stress and depression.[36]

Cultural Factors

Medication Beliefs. Research has consistently shown that individuals' beliefs regarding the necessity of a medication, and the level of concern about taking daily medications, differ among cultural groups. This effect is seen across several conditions, including asthma, diabetes, depression, HIV/AIDS, and hypertension.[16,37,38] Beliefs about disease, approach to self-management, and medications can be

influenced by history, culture, family experiences, and individual preferences, and may involve complexities beyond the risks and benefits that are typically discussed during the patient encounter. Adherence is ultimately influenced by a host of contextual factors that are important for healthcare providers to consider; therefore, the patient's concerns about the medications, and whether these concerns outweigh the potential benefits, are important points of discussion.

Among racial and ethnic minorities, there are well-documented concerns about participation in medical research and medical care in general; many have suggested that these concerns have strong historical roots in prior medical abuse of minority populations.[39] The effects of this caution and mistrust may play a role in patient acceptance of self-management recommendations and subsequent adherence. As an example, empirical surveys demonstrate that African American patients with HIV/AIDS have high levels of concern regarding antiretroviral treatment and HIV infection. Data from one large survey showed that, relative to other racial/ethnic groups, African Americans more frequently endorsed the belief that HIV is a manmade virus, and more often agreed with the statement that those who take antiretroviral medications are "human guinea pigs."[40] The association between HIV conspiracy beliefs such as these and lower medication adherence among African American men with HIV/AIDS was confirmed in another study.[41] A higher overall level of medical mistrust has also been shown to predict lower levels of adherence to HIV medications among African American men.[42] These findings suggest that there may be important historical factors impacting cultural attitudes toward medical care that influence patients' acceptance of self-management recommendations, which could ultimately affect medication adherence and health outcomes.

Complementary and Alternative Medication Use. Complementary and alternative medicine (CAM) refers to health approaches that may be used together with, or as an alternative to, conventional medicine; these approaches are reportedly used by approximately 30% of US adults.[43] CAM approaches include natural products such as herbal remedies, as well as mind and body practices such as massage, acupuncture, yoga, spirituality/prayer, and energy therapies.[43] CAM use for chronic conditions may vary by race and ethnicity,[44,45] and disclosure of CAM use during the medical encounter occurs less frequently among minority groups,[46] which may be due to concerns about a negative response, or simply to practitioners not asking.[47] Some have hypothesized that CAM use may be related to variability in medication use and adherence across racial and ethnic groups.[48–50]

A number of studies have evaluated CAM use and its relation to adherence to traditionally prescribed medications, with mixed results. In a study of CAM in ethnically and racially diverse patients with type 2 diabetes, the use of CAM in place of diabetes medications was found more frequently among Mexican American patients than among non-Hispanic whites, and both Mexican American and Vietnamese patients described CAM as being more similar to their cultural traditions than diabetes care provided by medical practitioners.[45] Additionally, for those with limited medication access, patients may consider CAM if it presents a more economical alternative to prescribed medications.[51] In communities with greater medication access, integrating CAM with traditional approaches may be more common.

A few recent studies have evaluated the relationship between CAM and adherence to antiretroviral therapy for HIV/AIDS, also with mixed results. Littlewood and colleagues found that the use of CAM was very common among HIV-infected patients, but was not associated with lower adherence to antiretroviral therapy,[49] whereas Ekwunife and colleagues found that CAM use *was* associated with lower self-reported use of antiretrovirals.[50] While the relationship between CAM use and medication adherence is not completely straightforward, and may vary based on patient factors, disease severity, and attitudes toward CAM, these studies underscore the importance of asking patients about the use of CAM.[46] Identifying whether and how patients use CAM (i.e., as an alternative to traditional medications or as a supplemental treatment) is an important consideration in understanding adherence to traditional medication use among patients with chronic conditions.

Language Barriers to Adherence. Limited English proficiency (LEP), often in combination with factors such as lower levels of acculturation, disadvantaged SES, and limited or public insurance coverage, can introduce critical communication barriers in patient discussions with healthcare providers.[52] In addition, patients and families with LEP may be seen in healthcare practices with fewer resources, including limited interpreter services. Even when trained health interpreters are used, some studies show that healthcare providers may spend less time listening and make fewer statements of support to families with LEP.[52] Greater time is required to translate the healthcare information and to ensure that messages are delivered clearly and are understood, presenting additional challenges in busy clinical practices. In one study of elderly Latino patients with asthma, LEP was associated with lower medication adherence and worse health outcomes.[53] Interestingly, in a study of Latino adolescents with asthma, youth reported they were often relied upon as ad hoc interpreters, and many reported purposely editing information when communicating health information between parents and physicians, illustrating the potential for miscommunication and poor follow-through on physician recommendations.[54]

Healthcare System Factors

Healthcare Provider Communication and Bias. A growing body of evidence indicates that unintentional biases on the part of healthcare providers may be an important factor contributing to disparities in healthcare.[25,55] Some research suggests that

healthcare provider communication patterns during interactions with white patients differ from those with patients of color.[55] For example, in a study of patients with sickle cell disease (mean age, 34.5 years), patient perceptions of discrimination by medical professionals were associated with nonadherence to physician recommendations.[27] Additional studies have attempted to quantify differences in communication patterns between physicians and patients of color though audio- or videorecording of office visits. One key study using this approach found that primary care visits for black patients were characterized by more verbal dominance and statements of direction, and fewer attempts at patient-centered communication, compared to visits with white patients.[56] In one study, race concordance between physicians and patients was associated with longer visit length and more positive affect, but not with differences in communication patterns.[57]

Substantial evidence suggests that even individuals with explicitly held egalitarian beliefs about race and ethnicity still possess "implicit biases" (automatic cognitive biases) that operate outside conscious control.[58] Some research indicates that mere awareness of a stereotype can distort the processing of information about specific individuals.[59] For healthcare providers, conditions of time pressure, limited familiarity with patients from specific cultural groups, and the need for rapid clinical decision-making may result in communication patterns that are influenced by implicit biases,[60,61] and may affect disease management recommendations. Accordingly, some have suggested that a key component in addressing disparities is engendering awareness among healthcare providers of the potential for unintended bias in their interactions with patient.[62] Some efforts in medical school education are encouraging in this regard. One study of medical students evaluated a number of efforts during training to reduce implicit racial bias; interestingly, completing the Black-White Implicit Association Test (IAT),[63] a publicly available self-administered measure that provides feedback about the degree of unconscious bias, was an independent predictor of reduced racial bias between the first and fourth years of medical school.[64]

INTERVENTIONS TO IMPROVE ADHERENCE

A discussion about the social and behavioral models used to understand the drivers of adherence and the current approaches to improve patient adherence are provided elsewhere in this collection (see Amico et al. and Stirratt et al.[13,65]). A brief overview of interventions that may be useful in addressing cultural issues in medication adherence is presented below, and summarized in Table 1.

Patient-Targeted Interventions. Overall, the results of research on the efficacy of individually delivered interventions (i.e., provider to patient, electronically delivered directly to patients) have been mixed. Mobile technology approaches (mHealth) are increasingly being used and have shown some promise.[70] Across all modalities, however, effects have been modest and difficult to sustain over time.[71] For interventions that have been identified as effective, adapting these approaches to address the specific needs of individual cultural groups may hold promise for improving adherence and outcomes among racially and ethnically diverse groups.[72] A number of frameworks exist to guide the adaptation of evidence-based interventions for different cultures and subcultures. If conducted rigorously, these could provide a channel for directing empirically supported approaches for improving medication adherence to populations in need.[72,73] One potential drawback to these approaches, however, is that they assume that the source of low medication adherence is the patient and family, and do not necessarily account for adherence barriers at the health provider and healthcare system levels. Structural interventions such as providing language-concordant services through interpreters for LEP patients, and interventions directed toward providers, may also be necessary.

Table 1 Intervention Approaches for Addressing Cultural Issues in Medication Adherence and Potential Impacts

Intervention	Cultural Issues Addressed
Individually delivered provider-to-patient interventions (see Gakumo et al. in this issue for a review), with cultural adaptations as appropriate	Individual-level barriers to adherence (e.g., patient depressive symptoms, medication costs) may be identified Medication beliefs may be addressed/understood
Cultural competence training for providers[66,67]	Perceived discrimination may be reduced Medication beliefs may be addressed/understood Complementary and alternative medication use more likely to be discussed
Patient-centered communication training for providers[68,69]	Perceived discrimination may be reduced Patients' concerns (medication beliefs, CAM use, depressive symptoms) more likely to be addressed
Implicit bias training for providers (AAMC)	Perceived discrimination may be reduced
Language-concordant services (through interpreters, bilingual providers)	Communication patterns may be improved

Provider Interventions. Cultural competence has been defined as the provision of health services that are respectful of and responsive to the health beliefs, practices, and needs of diverse patients groups.[66] Accordingly, increasing the cultural competence of providers may have some impact on key predictors of medication adherence, such as perceived discrimination, and may enhance providers' awareness of culturally influenced medication beliefs and use of complementary and alternative medications. Some evidence suggests that cultural competence among healthcare providers may be associated with better medication adherence among low-income urban groups. One study at urban HIV clinics asked healthcare providers to self-rate their cultural competency.[67]

Table 2 Agenda for Future Research: Cultural Issues in Medication Adherence

• Impact of healthcare system reform on disparities in medication access and use
• Potential role of community healthcare workers and health coaches in promoting adherence
• Testing conceptual models of medication and illness in life context (vs. existing models of health beliefs and disease management behavior)
• Development of new measures to evaluate shared decision-making in clinician encounters
• Role of implicit bias and institutional racism in medical practice (e.g., physician–patient interactions, medication prescribing patterns)
• Impact of existing interventions to 1) promote cultural competence and 2) address implicit bias on healthcare practices, patient behaviors, and health outcomes

Interestingly, those with higher self-ratings of cultural competency also had a greater proportion of patients receiving antiretroviral treatment prescriptions, higher patient adherence, and better outcomes. Research has also demonstrated that enhancing patient-centered communication among healthcare providers can improve adherence. A 2009 meta-analysis evaluated a number of studies with regard to the effect of physician communication training on patient adherence,[68] with all but one showing a positive effect. The risk of nonadherence was 1.3 times greater for patients of physicians who did not receive training, whereas the odds of a patient adhering to medication was 1.6 times higher if the physician had been trained in communication skills.

These studies are encouraging, and suggest that enhancing cultural competence and patient-centered communication among providers may have important effects on patient care. Even if providers are well educated about cultural diversity and communication, effective training is needed to increase provider awareness of key issues such as institutional racism, societal privilege, and class differences that could account for disparities in care and poor medication adherence.[25,60,62] Numerous resources for enhancing cultural competence among healthcare professionals are now available through national organizations such as the American Association of Medical Colleges[74] and university-based organizations such as the National Center for Cultural Competence.[75] Nevertheless, further research is needed to enhance our understanding of culture-specific perceptions regarding medication use and barriers to consistent adherence, and to aid in developing and evaluating patient-centered, culturally tailored interventions (Table 2).

CONCLUSIONS

The ever-increasing diversity of patient demographics requires consistent and thorough review of our systems of healthcare delivery and evaluation of how well they serve the patients in our care. Adherence to prescription medications, a core component of most disease regimens, involves effective patient–provider communication and clear understanding of potential barriers to consistent medication use.[68] Suboptimal levels of medication use are widespread across many different diseases, and disproportionately represented in patients from racial and ethnic minority backgrounds.[16,22,38] Ineffective patterns of communication and lack of healthcare provider understanding of how cultural context influences patient beliefs may impede adherence among patients from diverse racial/ethnic and cultural backgrounds.[56,76]

Despite clear disparities in medication use and adherence, some intervention approaches hold promise. Multiple approaches to patient-centered communication can broaden the impact of messages about the importance of medication adherence. Medication beliefs vary among individuals, within families, and across cultures,[66] and these beliefs are associated with medication adherence across many health conditions.[76] Dialogue regarding medication beliefs should occur in the context of open patient–provider communication, and should include a discussion of CAM approaches that the patient may be using.[76] Including multiple family members or alternative caregivers in discussions about medications, whenever feasible, is advised. The use of community health workers and interventions in home settings may facilitate the inclusion of family members and caregivers. Technology innovations, such as mHealth approaches, offer the potential for wide dissemination of low-cost interventions that may improve adherence through self-monitoring and prompting.[73]

Implementing healthcare provider training in the areas of cultural competence and effective communication may aid in improving medication adherence in diverse groups.[71] Patient-centered communication approaches,[69] combined with increased awareness of cultural and historical antecedents to medication beliefs and barriers to adherence, may enable providers to understand patients' perspectives regarding the need for and concerns about medications, in order to develop more effective approaches toward improving adherence.

Studies are needed to evaluate systematic approaches for enhancing provider awareness of implicit biases and stereotypes that may influence patient interactions. This research will set the stage for the development of more effective, systemic interventions to enhance cultural competence and communication among healthcare providers and across the healthcare system, and to enhance the care for patients with chronic conditions from a range of diverse backgrounds.

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