

Treatment adherence in South African primary health care

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Abstract

Patient non-adherence to medical treatment regimens is a pressing problem in South African primary health care. The absence of a cogent research base in the South African context has meant that solutions to the problem of non-adherence continue to elude clinicians. This paper offers an understanding of patient non-adherence from the perspective of behavioural science. It focuses on the way in which adherence is conceptualised and assessed, and examines the social, economic and psychological factors associated with patient behaviour. Psychological issues that are highlighted as affecting adherence include health locus of control, self-efficacy, psychological morbidity, health literacy and quality of life. Commonly used intervention strategies to enhance treatment adherence are examined and health workers are alerted to the contributions of behavioural science in understanding this aspect of patient behaviour.

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Introduction

Anecdotal evidence suggests that patient non-adherence to medical treatment regimens is a widespread problem in the South African primary health care system. In the context of meagre financial resources, inadequate public funds directed at health care and a low ratio of medical personnel to patients in need of care, the question of treatment adherence is likely to have far-reaching health, economic and social implications. In post-apartheid South Africa, rapid changes continue to occur in the delivery of health care, the availability and uptake of services, and the locus of responsibility for ensuring optimal community health. Patients with chronic illnesses such as diabetes, hypertension and asthma who reside in impoverished communities generally have several competing demands on their time, financial resources and energy. Also, given the educational disadvantages among formerly oppressed communities, health literacy is low, which impacts negatively on treatment adherence. The issue of adherence

is therefore a complex medical and behavioural phenomenon.

The small number of publications in peer-reviewed accredited journals suggests that there is a paucity of quality data on this topic in South Africa. Solutions to the problems of non-adherence therefore continue to elude researchers and clinicians. In order to offer an understanding of adherence from the perspective of behavioural science, this paper focuses on the following issues as they pertain to the topic: assessment, social and economic factors, health locus of control, self-efficacy, psychological morbidity, health literacy, and quality of life. The body of research conducted elsewhere in the world is considered to the extent that it may be applicable to the South African context.

While enjoying the political freedom characteristic of any liberal democracy, post-apartheid South Africa is also characterised by poverty and the consequences of decades of legalised racism. In terms of access to healthcare, a two-tiered system exists. Consumers of

health care who have formal white-collar employment typically have medical aid plans and may thus access the private health care system. South Africans who are unemployed, under-employed, and those below a certain income threshold, on the other hand, attend primary health care clinics that are often overcrowded, under-resourced and staffed by over-worked health care professionals. While little data exist concerning the extent of non-adherence among patients attending primary care facilities, anecdotal evidence suggests that the problem is extremely severe among chronically ill patients in economically marginalised sectors of the population.

The biomedical model has historically emphasised the importance of biological pathways to disease and has generally ignored the psychosocial correlates of health and illness. As such, adherence as a factor in health management has not been the subject of South African medical research. However, given its importance in terms of health outcomes, it has fallen on social and behavioural

scientists to develop a contextually – and culturally – relevant understanding of the barriers to adherence. For the purposes of this paper, adherence is defined as “observance of health-related advice given by healthcare personnel”.¹

Patient non-adherence as a problem in South African primary healthcare

Patient non-adherence is both costly and deleterious to health. Medications that are prescribed following consultation with a medical professional are usually dispensed with an expectation of close to perfect adherence. Treatment regimens for conditions such as hypertension and diabetes usually require strict adherence to instructions. Such instructions pertain to the dosage, timing, ingestion with specific foods, specifications regarding ingestion with other medicines, and consistent adherence over time to the treatment regimen. Patient non-adherence may therefore have severe implications for the control of symptoms, recovery time, quality of life and mortality. Treatment complications may also result from non-adherence. For example, when a given dosage is determined to have little or no effect, a medical professional may prescribe a dose increase with the assumption that the original dose was insufficient. Yet, non-adherence may account for a poor treatment outcome and, in these circumstances, overdosing may constitute a serious health hazard. In terms of financial implications there is likely to be considerable wastage when resources are directed at medical consultations, medication, transport to appointments and other aspects surrounding medical care if adherence to treatment remains low. For these reasons, and in the context of limited financial resources, the question of adherence is of considerable importance in order to enhance the effectiveness of treatments and thereby maximise health outcomes.

Research on adherence in South Africa

The question of treatment adherence has been subject to little empirical study in South Africa. A search for research

articles addressing the issue of adherence in South African communities yielded one citation in PsychInfo² and two in Medline^{3,4}, which are two on-line research databases. In a review of the potential role of educational, cognitive and behavioural change strategies for the treatment of hypertension, Edwards (1992) speculated on strategies that could be used as an adjunct to or in place of medication. These strategies included educating and training in weight reduction and smoking cessation, healthy dietary and exercise habits, and various cognitive and behavioural stress management techniques.² Most of the research reviewed by Edwards (1992) was of European or American origin, as no South African data were available. Dick and Lombard (1997) examined the effect of a combined strategy of a patient-centred interview and a patient education booklet on the adherence of notified pulmonary tuberculosis patients to prescribed treatment. They found a significant reduction in non-adherence to anti-tuberculosis treatment among patients who received the intervention compared to patients assigned to a control group.³ Dick and Lombard (1997) suggest the need for further operational research to develop standardised protocols of health education for treatment adherence among patients who require protracted treatment regimens.³ In another study, Dick et al. (1986) evaluated the effectiveness of a group of volunteers in enhancing the adherence of notified tuberculosis patients to treatment. In this cohort study of 351 patients (203 children and 148 adults), it was found that supervision provided by volunteers did not significantly improve the adherence of adult patients to treatment, but showed minor changes with children.⁴

How do we assess treatment adherence?

Accurate assessment of treatment adherence, particularly in the form of self-report measures, is often compromised by inflated estimates obtained from patients. Health professionals may also fail to adequately estimate the extent of patient cooperation with treatment.⁵ Most

doctor-patient encounters are limited to a consultation time of only a few minutes, thus not permitting extensive inquiries into patient adherence. Other methods of assessment, such as the inspection of hospital, clinic and pharmacy records, may yield objective data about whether or not prescriptions have been filled. However, not only are such records sometimes inaccurate reflections of actual prescriptions, they also do not accurately predict whether the medication has been taken by the patients as prescribed.⁶ Moreover, the behavioural dimensions of treatment regimens such as diet, exercise, sleep, recreation and relaxation are not reflected in such records. Electronic monitoring of adherence has also been considered. This method is likely to be financially unfeasible in the context of poor communities in South Africa. Moreover, unfamiliarity with the technological aspects of electronic monitoring among patients may yield poor outcomes in terms of compliance with these procedures. While electronic monitoring may have applicability in adherence to medication regimens, this may not be easily transferred to behaviour change regimens. Hypertensive patients, for example, are required to change their diet so as to reduce their vulnerability to myocardial infarction or stroke. Accurate measurement of adherence to these prescriptions is often extremely difficult, as patients, for various reasons, overestimate the extent of their cooperation with their doctors. These measurement difficulties suggest that researchers who conduct studies of adherence may be obliged to accept more error in adherence data than when measuring other variables.

Studies of adherence face further problems that compound the pitfalls in assessment. Patients who consent to enrol in research programmes are a self-selected group and therefore may have higher levels of adherence than those who decline participation. Moreover, the attentional effects that accompany being enrolled in a research study may influence baseline adherence levels in a positive direction. In a typical research study, patients will likely receive considerably more attention and monitoring

than those routinely attending public clinics in South Africa.

Factors affecting patient adherence

Various factors have been identified in the literature as having important influences on adherence. These most commonly include socio-economic factors and psychological factors. Adherence, in turn, plays an important role in determining quality of life, in either positive or negative ways. Thus, social and behavioural factors ultimately exert important influences on health, healthcare utilisation, and benefit to patients. In the following section, research from various geographical contexts is reviewed and applied to the South Africa context.

Social and economic factors

Social and economic factors often combine to yield poor adherence outcomes. Among an indigent sample of HIV-positive persons, Simoni et al. (1995) found low levels of adherence to the correct number of pills, dosing schedules and special instructions. Poverty in itself is likely to affect adherence, as money to pay for medication may need to be directed elsewhere, funds for travel to the doctor's office may not be available, or childcare during appointments may not be readily accessible. The competing demands of several responsibilities, such as work and family life and the stresses associated with poverty and difficult life circumstances, obviate an acknowledgement of the importance of complying with treatment regimens. Such competing demands may be especially important threats to adherence among the poor.⁷

Psychological factors

In studies identifying the variables associated with non-adherence, psychological factors were shown to play an important role. A higher level of adherence was associated with higher education, higher perceived self-efficacy and higher knowledge of treatments and consequences of poor adherence.⁸ Among a sample of tuberculosis patients in Georgia in the United States, higher annual income, higher education, no alcohol

use, a high level of social support and a belief in the usefulness of medication were all positively correlated with adherence.

Social support

Considerable research has demonstrated consistently that social support is a robust predictor of medical adherence.^{8,9,10,11} Social support for adherence is the encouragement from family and friends for the patient to cooperate with the recommendations and prescriptions of a health professional. The expression of concern and encouragement from others to engage in health-promoting behaviours, including medication adherence, combines with social desirability needs on the part of the patient to yield higher rates of medical cooperation. An issue related to social support, the relationship between the doctor and patient, has also been shown to be strongly associated with adherence.^{12,13,14} Data obtained by Roberts (2000) showed that physicians viewed communicating with patients about adherence issues as important. While the doctor-patient relationship may ostensibly constitute an example of social support, it also extends beyond this. The medical professional is most often seen as a person in authority, in the possession of specific expertise that is unobtainable elsewhere, and as someone in whom the patient solely invests hope for assistance in the recovery process.¹² In the context of South African primary healthcare clinics, most patients receive treatment from nurses, with medically trained doctors providing oversight, supervision and medication management, but less often direct care.

The role of self-efficacy

Patients who have a greater level of confidence in being able to carry out a doctor's instructions are likely to engage in such activities to a greater extent than those who do not. Thus, self-efficacy has also been associated with improved levels of adherence.^{8,15,16} Yet, several factors interact to affect self-efficacy. Chief among these are the patients' level of comfort with interacting with the healthcare system, their relationship with medical personnel¹² and the complexity of

the treatment regimen.¹⁷ Together with health literacy, the competing demands of daily living and limited financial resources, these factors impact on adherence self-efficacy in a manner that may be unique to primary care patients residing in historically disadvantaged South African communities. The paternalistic manner in which healthcare is dispensed in the primary healthcare sector in South Africa places the locus of responsibility for the patient's recovery on the medical system, particularly medical personnel, rather than emphasising a collaborative partnership between the patient and the healthcare establishment. As such, ownership of the medical problem, its solutions and the behavioural adjustments that need to accompany a recovery plan are often not seen as joint concerns that require negotiation of responsibility for health-positive outcomes. Indeed, when patients are engaged in an authoritarian and victim-blaming manner, the possibilities for positive health outcomes are reduced.

Psychiatric morbidity

Several studies have documented the role of psychiatric morbidity as affecting adherence either directly or indirectly.¹⁸ Depression in particular has been documented to have a strong association with medical non-adherence.^{17,18,19} Persons exhibiting symptoms of psychological distress or depression are less likely to assert themselves in remaining adherent to medication regimens that in some cases require the ability to follow complex instructions from a medical professional. The emotional and cognitive disturbances that occur as part of the depressive symptom picture may inhibit the patient's ability to concentrate and to remember important details, such as the recommended time of day or sequence of administration.²⁰ The implications of psychiatric morbidity on adherence suggest a need for greater integration of mental health research in order to gain a better understanding of non-adherence.

Research in the United States suggests that approximately 6,0% of patients attending primary care facilities suffer from depression.²¹ Psychiatric

epidemiological studies of this nature have not been undertaken in South Africa and thus no data are available to make comparative statements about the prevalence of major depression among South African primary care patients. However, given the multiple stressors that poor communities face, the absence or inadequacy of appropriate support mechanisms, and poor access to professional psychiatric treatment, the prevalence of untreated depression among South African communities is likely to be high. Patients who exhibit symptoms of depression are likely to be less adherent than their non-depressed counterparts.

Health locus of control

Health locus of control is another factor implicated in patient adherence. Sensky et al. (1996) determined that gender, age, social adjustment, health locus of control and depression were significant predictors of adherence. In Sensky et al.'s study, patients who perceived their health as controlled by internal factors tended to be more adherent than those who located control of their health externally.²² Related to the locus of control and, indeed, to health literacy, is the level of treatment complexity. Howard et al. (2001) examined the relationship between complex antiretroviral regimen and medication adherence among women. They observed poorer adherence as the complexity of the treatment regimens increased, indicating that more simple regimens may likely optimise patients' adherence.²³ These findings suggest that adherence levels are likely to be disease specific and that patients whose treatments involve complex regimens are likely to be less adherent than those patients whose treatments are relatively simple.

Effect of treatment on quality of life

An important factor associated with adherence is the extent to which the patient's quality of life is compromised by the treatment regimen. Thus, factors such as drug toxicity or intolerance,²⁴ discomfort associated with side effects,⁹ and dissatisfaction at having to make changes in terms of diet,²⁵ exercise activities,²⁶ and work habits²⁷ play an

important role in the patient's quality of life. In some cases, diagnosis may have occurred at a pre-symptomatic level and medication or behavioural changes prescribed. Under these circumstances, there are few directly perceived benefits associated with adherence. Combined with poor quality of life brought on by the side-effects of medication, the absence of a perceived benefit of the medication or of behavioural adherence may be a further barrier to adherence.

Health literacy

Health literacy may constitute a threat to adherence.²⁸ Health literacy implies an awareness of the importance of adhering to medical instructions from a healthcare worker, despite the absence of actual symptoms. Many patients only consider medication to be treatments following the onset of symptoms, rather than as prophylactic interventions. Yet, behavioural regimens such as low salt, fat and sugar intake, exercise, and adherence to specific medications in many cases serve a preventive function. When adopted for such purposes as reducing hypertension, maintaining appropriate insulin levels in the case of diabetics, and ensuring full recovery from tuberculosis by completing a treatment course even though the symptoms have disappeared, adherence may appear to be unimportant for many patients. However, the longer-term health consequences of non-adherence may be severe, as symptoms will inevitably develop.

Knowledge of illness and health literacy are closely associated. In a study assessing knowledge of tuberculosis among HIV-positive adolescents and adults, Murphy, Rotheram-Borus and Joshi (2000) found age differences in knowledge about tuberculosis. Adolescents reported less knowledge than adults, and younger males reported less knowledge than younger females. These results imply that education concerning the disease trajectory, symptoms and treatment options may yield positive results in terms of adherence.²⁹ In poor communities in South Africa, which are characterised by limited educational opportunities, health literacy is likely to be low, accounting in part for low levels

of adherence. Moreover, local cultural beliefs about the aetiology, course and resolution of health problems may obviate the efforts of biomedical interventions, such as the dispensing of drugs and invocations for behaviour change. Beliefs in the metaphysical origins of disease and cultural and religious practices that involve rituals, sacrificial rites and prayer may supersede or contradict the traditional ministrations of western medicine. Health literacy in the South African context is therefore not only a question of patients understanding the biomedical conceptions of disease and illness, but also the extent to which their personal and cultural worldviews are concordant with it.

Interventions to enhance adherence

The complexity of the problem of patient non-adherence suggests that no single solution is likely to be helpful. Moreover, the idiosyncratic nature of study samples suggests that findings regarding the effectiveness of specific interventions are likely to have limited generalisability. There have been numerous studies evaluating the effectiveness of interventions aimed at enhancing treatment adherence. Various categories of interventions to enhance adherence to medication among patients with chronic conditions have been developed.³⁰ These include:

1. Instructions for patients, such as the presentation of oral and printed material. It is imperative, however, for printed material to be presented in a manner that is appropriate to the reading level of the patients. Various instruments are available to make determinations about the literacy level of patients.³¹ In addition to written material, visual aids may also help in clarifying patient instructions.
2. Increased communication and counselling, such as automated telephone messages, computer-assisted patient monitoring, and family interventions.
3. Increasing the convenience of care, by means of worksite dispensing and simplified dosing.
4. Greater involvement of patients in their care, such as self-monitoring

of blood pressure or respiratory function.

5. Providing reminders in the form of special pill packaging, medication charts and appointment reminders.
6. Offering rewards for adherence, such as a reduction in the frequency of visits or subsidising blood pressure monitoring equipment.

Most interventions rely on a combination of these categories in order to maximise the likelihood of positive outcomes. Among South African patients living with chronic illnesses, as elsewhere, the clinical imperative is to ensure that long-term gains are maintained. Interventions directly tailored to the specific diseases, patient populations and cultural contexts are most likely indicated in order to produce positive health outcomes.

Conclusion

Adherence to treatment regimens is an important but under-researched issue in South African primary healthcare. The rapid changes in healthcare in post-apartheid South Africa have brought into focus the importance of conceptualising healthcare issues, such as non-adherence, in a multi-dimensional manner. Psychological factors, such as social support, self-efficacy, psychiatric morbidity, the health locus of control, health literacy and quality of life, play an important role in determining the extent of patient adherence. Medical practitioners and other healthcare workers may thus utilise the knowledge base offered by behavioural science in understanding issues related to their patients' adherence.✉

Conflict of interest

None declared

References

1. Lahdenpera TS, Kyngas HA. Patients' views about information technology in the treatment of hypertension. *J Telemed & Telecare* 2000;6:108-13.
2. Edwards, D. The challenge of hypertension to South African health psychology: The potential contribution of educational, cognitive and behavioural strategies to prevention and treatment. *S Afr J Psychol* 1992;22:105-16.
3. Dick J, Lombard C. Shared vision – a health education project designed to enhance adherence to anti-tuberculosis treatment. *Int J Tuberc & Lung Dis* 1997;1:181-6.
4. Dick J, Schoeman JH, Mohammed A, Lombard C. Tuberculosis in the community: 1. Evaluation of a volunteer health worker programme to enhance adherence to anti-tuberculosis treatment. *Tubercle & Lung Disease* 1986;77:274-9.
5. Gross R, Bilker WB, Friedman, HM, Coyne JC, Strom BL. Provider inaccuracy in assessing adherence and outcomes with newly initiated antiretroviral therapy. *AIDS* 2002;16:1835-7.
6. Wagner GJ, Remien RH, Carballo DA, Dolezal C. Correlates of adherence to combination antiretroviral therapy among members of HIV-positive mixed status couples. *AIDS Care* 2002;14:105-9.
7. Simoni JM, Frick PA, Lockhart D, Liebovitz D. Mediators of social support and antiretroviral adherence among an indigent population in New York City. *AIDS Patient Care & STDs* 2002;16:431-9.
8. Williams KE, Bond MJ. The roles of self-efficacy, outcome expectancies and social support in the self-care behaviours of diabetics. *Psychol, Health & Med* 2002;7:127-141.
9. Schuman P, Ohmit SE, Cohen M, Sacks HS, Richardson J, Young M, Schoenbaum E, Rompalo A, Gardner L. Prescription of and adherence to antiretroviral therapy among women with AIDS. *AIDS & Beh* 2001;5:371-8.
10. Safren SA, Otto MW, Worth JL. Life-steps: Applying cognitive behavioral therapy to HIV medication adherence. *Cog & Beh Prac* 1999;6:332-41.
11. Bearman KJ, La Greca AM. Assessing friend support of adolescents' diabetes care: The Diabetes Social Support Questionnaire – Friends version. *J Ped Psychol* 2002;27:417-8.
12. Roberts KJ. Physician-patient relationships, patient satisfaction, and antiretroviral medication adherence among HIV-infected adults attending a public health clinic. *AIDS Patient Care & STDs* 2002;16:43-50.
13. Ciechanowski PS, Katon WJ, Russo JE, Walker EA. The patient-provider relationship: Attachment theory and adherence to treatment in diabetes. *Am J Psych* 2001;158:29-35.
14. Catz SL, Heckman TG, Kochman A, DiMarco M. Rates and correlates of HIV treatment adherence among late middle-aged and older adults living with HIV disease. *Psychol, Health & Med* 2001;6:47-58.
15. Molassiotis A, Nahas LV, Chung WYR, Lam SWC, Li CKP, Lau TFJ. Factors associated with adherence to antiretroviral medication in HIV-infected patients. *Int J STD & AIDS* 2002;13:301-10.
16. Miller KH, Ogletree RJ, Welshimer K. Impact of activity behaviors on physical activity identity and self-efficacy. *Am J Health Beh* 2002;26:323-30.
17. Kubeck JE. Medication adherence: Estimation of a social cognitive model. *Diss Ab Int* 2002;62(7-B):3396.
18. Sullivan LM, Dukes KA, Harris L, Dittus RS. A comparison of various methods of collecting self-reported health outcomes data among low-income and minority patients. *Med Care* 1995;33:183-94.
19. Coleman CA. Predictors of adherence to exercise regimens among individuals with chronic health conditions. *Diss Ab Int: Section B: Sciences & Eng* 2002;62(12-B):5958.
20. Park DC, Kidder DP. Prospective memory and medication adherence. In Barndimonte M, Einstein G, editors. *Prospective Memory: Theory and applications*. Mahwah, NJ: Lawrence Erlbaum; 1996. p. 369-90.
21. Wittchen HU, Kessler RC, Beesdo K, Krause P, Hoefler M, Hoyer J. Generalized anxiety and depression in primary care: Prevalence, recognition, and management. *J Clin Psych* 2002;63:24-34.
22. Sensky T, Leger C, Gilmour S. Psychosocial and cognitive factors associated with adherence to dietary and fluid restriction regimens by people on chronic haemodialysis. *Psychother & Psychosom* 1996;65:36-42.
23. Howard AA, Arnsten JH, Lo Y, Vlahov D, Rich JD, Schuman P, Stone VE, Smith K, Schoenbaum EE. A prospective study of adherence and viral load in a large multi-center cohort of HIV-infected women. *AIDS* 2002;16:2175-82.
24. Park WLY, Scalera A, Tseng A, Rourke S. High rate of discontinuations of highly active antiretroviral therapy as a result of antiretroviral intolerance in clinical practice: Missed opportunities for adherence support? *AIDS* 2002;16:1084-6.
25. Lynch DJ, Repka FJ, Nagel R, Birk T, Gohara A, Leighton R, Walsh M, Weaver M. Prediction of dietary adherence in cholesterol reduction: Relative contribution of personality variables and health attitudes. *Psychol & Health* 2000;15:821-8.
26. Izquierdo-Porrera AM, Powell C, Reiner J, Fontaine KR. Correlates of exercise adherence in an African American church community. *Cultural Div & Ethnic Minority Psychol* 2002;8:389-94.
27. Rodham K, Bell J. Work stress: An exploratory study of the practices and perceptions of female junior healthcare managers. *J Nurs Management* 2002;10:5-11.
28. Van Servellen G, Johiro AK, Tichacek MJ. Detection and documentation of actual and potential medication adherence problems in patients receiving combination therapies. *J Assoc Nurs AIDS Care* 2002;13:64-77.
29. Murphy DA, Rotheram-Borus MJ, Joshi V. HIV-infected adolescent and adult perceptions of tuberculosis testing, knowledge and medication adherence in the USA. *AIDS Care* 2000;12:59-63.
30. McDonald HP, Garg AX, Haynes RB. Interventions to enhance patient adherence to medication prescriptions: Scientific review. *JAMA* 2002;288:2868-79.
31. Parker RM, Baker DW, Williams MV, Nurss JR. The test of functional health literacy in adults: a new instrument for measuring patients' literacy skills. *J Gen Int Med* 1995;10(10):537-41.