

Barriers to Physical Activity Among Predominantly Low-Income African-American Patients With Type 2 Diabetes

GARETH R. DUTTON, MA¹
 JOLENE JOHNSON, MD²
 DORI WHITEHEAD, MA¹

JAMIE S. BODENLOS, MA¹
 PHILLIP J. BRANTLEY, PHD³

Physical activity is one of the most neglected aspects of the type 2 diabetes treatment regimen (1). Environmental barriers may play a role (2), particularly among African-American patients who report more physical activity barriers than Caucasians (3,4). African-American focus groups reported numerous barriers, including unsafe walking areas, transportation problems, lack of child care, peripheral neuropathy, and degenerative joint disease, some of which are not assessed by existing questionnaires (5,6). Despite these initial qualitative findings from focus groups, there is limited quantitative research addressing physical activity barriers specific to African-American or low-income diabetic samples. The current objective was to examine barriers reported by this population. The relationships between barriers and medical outcomes, demographic variables, and attitudes about exercise were examined.

RESEARCH DESIGN AND METHODS

Participants included 105 adult patients with type 2 diabetes attending primary care appointments. The clinic was affiliated with a public teaching hospital providing care to predominantly low-income African-American patients. Patients were approached in the waiting room before

appointments. After obtaining informed consent, study personnel administered demographic and diabetes history questionnaires. They assessed 35 perceived barriers to physical activity, which were taken from several surveys (7–9) and results of minority diabetes focus groups (5,6,10). Participants rated the frequency with which they experience each barrier on a scale of 1 (never true) to 6 (always true). Participants were asked two questions about the effectiveness of physical activity in controlling their diabetes and diabetes complications (11).

Medical charts were reviewed for HbA_{1c}, weight, height, and blood pressure. Descriptive analyses summarized sample characteristics and physical activity attitudes and barriers. Correlational analyses and ANOVAs examined relationships between demographic, psychosocial (e.g., attitudes, barriers), and health outcome variables.

RESULTS— The mean age of participants was 53.42 ± 10.64 years, and 77% of the sample was female. Approximately 69% were African American, and 28% were Caucasian. Fifty-seven percent had graduated high school, 79% were unemployed, and 52% reported making <\$500 per month. Mean BMI was 34.30 ± 7.58 kg/m². The mean HbA_{1c} was $8.25 \pm 2.25\%$.

From the ¹Department of Psychology, Louisiana State University, Baton Rouge, Louisiana; the ²Department of Internal Medicine, Louisiana State University Health Sciences Center, Baton Rouge, Louisiana; and the ³Division of Educational Programs, Pennington Biomedical Research Center, Louisiana State University, Baton Rouge, Louisiana.

Address correspondence and reprint requests to Gareth R. Dutton, MA, Brown University Medical School, Centers for Behavioral and Preventive Medicine, 1 Hoppin St., Coro Building, Suite 500, Providence, RI 02903. E-mail: gareth_dutton@brown.edu.

Received for publication 10 August 2004 and accepted in revised form 31 January 2005.

A table elsewhere in this issue shows conventional and Système International (SI) units and conversion factors for many substances.

© 2005 by the American Diabetes Association.

The costs of publication of this article were defrayed in part by the payment of page charges. This article must therefore be hereby marked "advertisement" in accordance with 18 U.S.C. Section 1734 solely to indicate this fact.

When asked, "How important do you believe exercise is for controlling your diabetes?" 75% reported that it was extremely important, 18% reported it was important, 5% reported it was moderately important, and 2% reported it was slightly or not at all important. When asked, "How likely do you think it is that exercise will prevent future complications from your diabetes?" 60% reported that it was very likely, 17% reported it was likely, 10% reported it was moderately likely, 8% reported it was unlikely, and 5% reported it was very unlikely.

In regard to potential barriers to physical activity, no barrier averaged >3 (on a 1–6 scale). The 10 most commonly cited barriers to physical activity are summarized in Table 1. Common barriers included lack of time, social support, and equipment, as well as medical and physical barriers to activity. Other less commonly reported barriers also dealt with social obligations (e.g., caring for children), health problems (e.g., injuries, chest pain), lack of access to exercise places and equipment, and a variety of miscellaneous barriers including bad weather, special occasions, and lack of physician advice.

Ratings of the 35 barriers were summed to create a total barriers score, which was unrelated to participants' age, income, education, employment status, sex, ethnicity, marital status, or BMI. Participants' perceived importance of exercise in controlling their diabetes was negatively associated with the number of barriers endorsed ($r = -0.29$, $P < 0.01$). Thus, participants reporting more severe barriers to exercise placed less importance on the value of exercise in controlling their diabetes. Barriers were not significantly related to participants' belief that exercise could prevent future diabetes complications.

CONCLUSIONS— These results represent one of the first attempts to assess barriers to physical activity reported by a sample of predominantly low-

Table 1—Barriers to physical activity among low-income patients with type 2 diabetes

Barrier	
I have health problems that keep me from exercising	2.78 ± 2.10
I do not have anyone to exercise with	2.77 ± 2.10
I have trouble getting back to exercise after a break in my routine	2.69 ± 1.99
I have joint pain that keeps me from exercising	2.57 ± 1.85
My leg pain is too bad to exercise	2.52 ± 1.86
Exercise is physically painful	2.48 ± 1.86
I do not have enough time at home to exercise	2.42 ± 1.68
I do not have the right equipment to exercise	2.18 ± 1.75
I do not have enough time during or after work to exercise	2.16 ± 1.47
There is not enough time in my schedule to exercise	1.97 ± 1.46

Data are means ± SD. Barriers were rated on 6-point Likert scale (1 = never true, 6 = always true).

income, African-American patients with type 2 diabetes. Results suggest the assessed barriers were not frequently encountered by most participants, as no barrier was rated >3, or “sometimes true.” On average, most barriers were rated between “never true” and “rarely true.” The most common barriers dealt with physical limitations that hindered activity (e.g., joint or leg pain), as well as problems associated with lack of time, equipment, and exercise partner(s). Therefore, results suggest that many barriers were more related to patients’ medical conditions than environmental barriers commonly associated with a low-income setting. It is also possible that internal barriers, such as self-efficacy or motivation, play a larger role than environmental barriers.

Barriers were unrelated to medical outcome variables (e.g., blood pressure, HbA_{1c}, BMI) or participants’ confidence in exercise preventing diabetes-related complications. However, participants who reported more barriers placed significantly less importance on exercise in the current control of their diabetes.

These results have several potential clinical implications. When addressing physical activity barriers, clinicians may wish to emphasize barriers related to patients’ medical conditions. Clinicians may also consider spending more time addressing other factors potentially influencing physical activity (e.g., bolstering patients’ self-efficacy), since the majority of barriers were not frequently experienced by most patients. It may be helpful for clinicians to assess patients’ attitudes and knowledge regarding physical activity, as well as potential environmental barriers. However, further research is needed to strengthen confidence in such recommendations. Future research would also be helpful in exploring the relationship among perceived barriers, knowledge of exercise recommendations, and attitudes regarding the importance of physical activity for diabetes treatment.

References

1. Pham D, Fortin F, Thibaudeau M: The role of the Health Belief Model in amputees’ self-evaluation of adherence to dia-

betes self-care behaviors. *Diabetes Educ* 22:126–132, 1996

2. Glasgow R, Eakin E: Issues in diabetes self-management. In *Handbook of Health Behavior Change*. 2nd ed. Shumaker SA, Schron EB, Eds. New York, Springer, 1998, p. 435–461

3. Schoenberg N, Drungle S: Barriers to non-insulin dependent diabetes mellitus (NIDDM) self-care practices among older women. *J Aging Health* 13:443–466, 2001

4. Wierenga M, Wuethrich K: Diabetes program attrition: differences between two cultural groups. *Health Values* 19:12–21, 1995

5. Carter-Nolan P, Adams-Campbell L, Williams J: Recruitment strategies for black women at risk for non-insulin-dependent diabetes mellitus into exercise protocols: a qualitative assessment. *J Natl Med Assoc* 88:558–562, 1996

6. Maillet N, Melkus G, Spollett G: Using focus groups to characterize the health beliefs and practices of black women with non-insulin-dependent diabetes. *Diabetes Educ* 22:39–46, 1996

7. Fitzgerald J, Davis W, Connell C, Hess G, Funnell M, Hiss R: Development and validation of the Diabetes Care Profile. *Eval Health Prof* 19:208–230, 1996

8. Glasgow R, McCaul K, Schafer L: Barriers to regimen adherence among persons with insulin-dependent diabetes. *J Behav Med* 9:65–77, 1986

9. Irvine A, Saunders J, Blank M, Carter W: Validation of scale measuring environmental barriers to diabetes-regimen adherence. *Diabetes Care* 13:705–711, 1990

10. Armstrong Shultz J, Sprague M, Branen L, Lambeth S: A comparison of views of individuals with type 2 diabetes mellitus and diabetes educators about barriers to diet and exercise. *J Health Commun* 6:99–115, 2001

11. Glasgow R, Hampson S, Strycker L, Ruggero L: Personal beliefs and social-environmental barriers related to diabetes self-management. *Diabetes Care* 20:556–561, 1997

Downloaded from <http://diabetesjournals.org/care/article-pdf/28/5/1209/566357/zacc00505001209.pdf> by guest on 03 July 2022