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Psychological Characteristics of Frequent Short-Notice Cancellers of Diabetes Medical and Education Appointments

Katie Weinger, EeD, RN[1,2], **Susan Lin, BS**[1], **Sheila J. McMurrich, BA**[1], **Myriel Rodriguez, BA**[1], and **Joyce P. Yi, PhC**[1]

1*From the Section on Behavioral and Mental Health Research, Joslin Diabetes Center, Boston, Massachusetts*

2*From the Department of Psychiatry, Harvard Medical School, Boston, Massachusetts*

Failure to attend scheduled medical appointments increases the cost of medical care (1) and may impact successful diabetes management (2). Short-notice cancellations of medical or educator appointments (no-shows and cancellations made within 24 h of an appointment) cannot be easily filled, resulting in lost revenue without a corresponding reduction in labor and facilities costs. Short-notice cancellations also impact the quality of overall patient care. Such cancellations reduce the number of appointments available to all patients, thus some patients needing more prompt medical attention may be placed on a waitlist. Furthermore, less frequent attendance at a diabetes clinic has been associated with poorer glycemic control (3). Finally, health professionals may develop negative attitudes toward those patients who frequently cancel appointments (4), which may undermine the clinician-patient relationship.

Although previous studies have attempted to identify demographic characteristics of patients who either did not schedule, cancelled, or did not attend appointments (2,5-12), we focused on psychological characteristics of patients with short-notice cancellations and the impact of these cancellations on successful diabetes management and cost of care. Specifically, in a prospective study, we asked whether short-notice cancellers differed in risk appraisal, coping processes, attitudes toward diabetes, and diabetes self-management from those who never cancelled.

RESEARCH DESIGN AND METHODS

We followed 134 diabetes patients attending a diabetes specialty clinic (mean age 49 ± 15 years, 63% type 1, duration of diabetes 19 ± 13 years, education 15 ± 3 years, 60% female) for 1 year. After giving informed written consent, patients completed a battery of psychological tests consisting of the Problem Areas in Diabetes scale (13,14), Self-Management Questionnaire (15), Self-Care Inventory-R (16,17), Brief Symptom Index (18), Coping Styles Questionnaire (19), Rosenberg Self Esteem Questionnaire (20,21), Self Mastery Scale (22, 23), and Life Orientation Test (23). HbA_{1c} (A1C) levels were obtained through chart review. The Joslin Diabetes Center uses the high-performance lipid chromatography ion capture method (Tosoh Medics, San Francisco, CA; reference range 4.0–6.0%). We then tracked clinic appointments scheduled, attended, and cancelled and A1C levels for 1 year. Medical appointments with physicians or nurse practitioners (MD/NP) were tracked separately from individual educator appointments. We did not include group appointments. Patients received

Address correspondence and reprint requests to Katie Weinger, Joslin Diabetes Center, 1 Joslin Place, Boston, MA 02215. E-mail: katie.weinger@joslin.harvard.edu..

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

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standard appointment reminders including confirmation letters and telephone reminders. We first examined the frequency of cancellations within the total sample and then separately for MD/NP and educator appointments. We used Student's *t* tests to examine differences in demographic and clinical variables and for other variables, estimated odds ratios (ORs) using simple and multivariate logistic regression for cancellers versus noncancellers. Cancellers were defined as those who gave short-notice cancellation for more than one appointment or no-showed for any appointment. Noncancellers were defined as those who attended all scheduled appointments, cancelled with >1 day notice, or had only one short-notice cancellation during the year.

RESULTS

A total of 134 patients scheduled 751 total appointments (483 medical and 268 educator) and actually attended 478 visits (yearly average of 3.6 ± 3.2 visits). Of the 273 cancelled/missed appointments, 155 (57%) were long-notice cancellations and were more easily filled. Long-notice cancellations will not be discussed further. Estimated lost revenue (charges) for 64 short-notice cancellations of MD/NP appointments was $7,040 and for 54 short-notice cancellations of educator appointments was $4,050 (amounts in 2004 dollars). These calculations do not include the cost of attempting to fill cancelled appointments; therefore, the total cost may be even higher. A total of 77 patients (57%) attended all scheduled appointments, 31 (23%) cancelled one appointment, and 26 (20%) cancelled two or more appointments. Of the total short-notice cancellations, 31% were no-shows. Short-notice cancellations were more common for educator appointments than for MD/NP appointments (20 vs. 13%, $P < 0.05$).

Type of diabetes was not associated with cancellations. Cancellers (both MD/NP and educator) were similar to noncancellers in demographic characteristics. Cancellers and noncancellers also had similar A1C levels at baseline (7.8 ± 1.3 vs. 7.9 ± 1.9%) and 1 year (7.7 ± 1.2 vs. 7.4 ± 1.1%). Cancellers scheduled more appointments (8.8 vs. 4.5, $P < 0.001$) and actually attended more appointments (4.5 vs. 3.2, $P < 0.05$) than noncancellers. For educator appointments, only self-controlled coping styles were associated with frequent cancellations. A different picture emerged for those who frequently cancelled MD/NP appointments. Those with lower pragmatic/stoic coping style, more anxiety, lower self-esteem, more diabetes-related distress, more depressive symptoms, lower optimistic attitude, more frustration with self-care, and lower self-care adherence were more likely to frequently cancel MD/NP appointments (Table 1). However, the final logistic regression model included only frustration with self-care (OR = 1.2, $P = 0.05$) and optimism (OR = 0.7, $P = 0.03$), with 73% concordance. Interestingly, the Problem Areas in Diabetes scale alone accurately predicted 68% of cancellers/noncancellers (OR = 1.4, $P = 0.004$).

CONCLUSIONS

Surprisingly, missing appointments did not reduce the number of appointments attended. In this prospective study, cancellers actually attended more appointments than noncancellers. Furthermore, the average A1C for both groups was <8%. Although the magnitude of the associations is small, the most important predictors of patients who cancelled MD/NP appointments were frustration with self-care and lack of optimism. Diabetes-related emotional stress may also be an important factor. Characteristics such as frustration and distress may be easily screened and responsive to intervention. Interestingly, for educator appointments, the two groups did not substantially differ, suggesting that short-notice cancellations may be related to perceived importance rather than psychological factors. Stressing the importance of educator appointments may reduce short-notice cancellations. Guse et al. (24) found that providing patients with exit interviews or debriefings after appointments improved attendance at subsequent visits, while others found mailing detailed information about upcoming

appointments and following up with a phone call improved attendance (25). Thus, providing patients with information that explains why attendance at appointments is important to their health may help improve attendance. In addition to a reminder system, provision and communication of clear rules, and psychological counseling or support may help reduce cancellations and therefore cost of care.

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Table 1

Characteristics of patients who canceled versus patients who did not cancel diabetes appointments

	MD/NP appointments			Educator appointments		
	Noncancellers (*n* = 111)	Cancellers* (*n* = 23)	OR (95% CI)	Noncancellers (*n* = 116)	Cancellers* (*n* = 18)	OR (95% CI)
Actual visits (1 visit)	2.3 ± 1.5	2.4 ± 1.9	1.1 (0.8–1.4)	0.9 ± 2.1	3.3 ± 3.4	1.3 (1.1–1.5)†
Diabetes-related distress (10 points)	30.0 ± 19.8	44.4 ± 22.5	1.4 (1.1–1.7)‡	32.0 ± 20.8	37.0 ± 22.1	1.1 (0.9–1.4)
Self-care frustration (10 points)	31.5 ± 22.6	45.4 ± 25.4	1.3 (1.1–1.5)§	33.0 ± 24.0	39.7 ± 20.5	1.1 (0.9–1.4)
Self-esteem (10 points)	77.7 ± 18.6	67.1 ± 20.6	0.8 (0.6–1.0)§	76.0 ± 19.2	74.8 ± 20.6	1.0 (0.8–1.2)
Optimism (10 points)	64.2 ± 17.3	54.0 ± 12.0	0.7 (0.5–0.9)§	62.4 ± 16.9	63.2 ± 17.5	1.0 (0.8–1.4)
Depression T score (10 points)	51.6 ± 10.0	58.7 ± 10.9	1.9 (1.2–3.0)‡	52.9 ± 10.6	52.2 ± 10.1	0.9 (0.6–1.5)
Anxiety T score (10 points)	52.5 ± 10.4	56.6 ± 9.9	1.4 (0.9–2.2)	53.2 ± 10.5	52.7 ± 10.0	1.0 (0.6–1.6)
Self Mastery Scale (10 points)	67.8 ± 16.7	58.6 ± 21.6	0.8 (0.6–1.0)§	65.9 ± 17.9	68.3 ± 18.2	1.1 (0.8–1.4)
Global severity (10 points)	54.2 ± 9.5	58.9 ± 9.4	1.7 (1.0–2.7)§	55.2 ± 9.7	54.1 ± 9.5	0.9 (0.5–1.5)
Adherence to self-care recommendations (10 points)	79.8 ± 11.7	73.4 ± 13.3	0.7 (0.5–1.0)§	78.8 ±12.3	77.5 ± 11.7	0.9 (0.6–1.4)
Self-control coping style (10 points)	56.6 ± 15.7	49.8 ± 15.5	0.8 (0.6–1.1)	56.8 ± 14.9	46.3 ± 18.5	0.7 (0.5–0.9)§
Emotional coping style (10 points)	41.4 ± 20.9	46.1 ± 20.3	1.1 (0.9–1.4)	42.9 ± 21.1	37.4 ± 19.2	0.9 (0.7–1.1)

Data are means ± SD. CIs (*P* values) are associated with simple logistic regression.

* Cancellers are defined as those patients with >1 short-notice cancellation or any no-show, whereas noncancellers had ≤1 short-notice cancellation;

† $P < 0.001$;

‡ $P < 0.01$;

§ $P < 0.05$