JACC Vol. 25, No. 2
February 1995:333–41

Development and Evaluation of the Seattle Angina Questionnaire: A New Functional Status Measure for Coronary Artery Disease

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Objectives. **This study sought to establish the validity, reproducibility and responsiveness of the Seattle Angina Questionnaire, a 19-item self-administered questionnaire measuring five dimensions of coronary artery disease: physical limitation, anginal stability, anginal frequency, treatment satisfaction and disease perception.**

Background. **Assessing the functional status of patients is becoming increasingly important in both clinical research and quality assurance programs. No current functional status measure quantifies all of the important domains affected by coronary artery disease.**

Methods. **Cross-sectional or serial administration of the Seattle Angina Questionnaire was carried out in four groups of patients: 70 undergoing exercise treadmill testing, 58 undergoing coronary angioplasty, 160 with initially stable coronary artery disease and an additional 84 with coronary artery disease. Evidence of validity was sought by comparing the questionnaire's five scales with the duration of exercise treadmill tests, physician diagnoses, nitroglycerin refills and other validated instruments. Reproducibility and responsiveness were assessed by comparing serial responses over a 3-month interval.**

Results. **All five scales correlated significantly with other measures of diagnosis and patient function ($r = 0.31$ to 0.70, $p \leq 0.001$). Questionnaire responses of patients with stable coronary artery disease did not change over 3 months. The questionnaire was sensitive to both dramatic clinical change, as seen after successful coronary angioplasty, and to more subtle clinical change, as seen among outpatients with initially stable coronary artery disease.**

Conclusions. **The Seattle Angina Questionnaire is a valid and reliable instrument that measures five clinically important dimensions of health in patients with coronary artery disease. It is sensitive to clinical change and should be a valuable measure of outcome in cardiovascular research.**

(J Am Coll Cardiol 1995;25:333–41)

Mortality reduction is a widely accepted criterion for demonstrating therapeutic efficacy in the treatment of coronary artery disease. Yet, age-adjusted mortality rates have declined by 54% in the past 20 years (1). As further therapeutic improvements are realized, it will become increasingly difficult to compare the impact of alternative treatments on mortality. Furthermore, as mortality declines, improving the quality of life or functional status of survivors with coronary disease becomes increasingly important.

Rather than focus on mortality, investigators often use physiologic measures, such as left ventricular ejection fraction, exercise treadmill duration or narrowing of coronary arteries, as the primary outcome in clinical trials (2–4). Although these surrogate end points do not obviate the need for evaluating mortality, they can be measured in all patients and can provide more powerful clinical trials with a given sample size. However, a potential problem with the use of surrogate end points is that they may correlate poorly with both survival (5) and patients' functional status (6–8). Directly monitoring patients' functional status not only increases the power of clinical trials but also examines an important goal of therapy.

There is no universally accepted functional status measure for coronary disease (9). Most commonly used is the Canadian Cardiovascular Society classification, with which physicians rate patients' functional status (10). The Specific Activity Scale and the Duke Activity Status Index predict physical limitation but lack specificity for coronary disease and do not address the full spectrum of limitation imposed by this condition (11,12).

Several quality of life domains are important to patients with coronary disease. Like existing measures, an optimal measure should quantify the level of exertion that a patient routinely performs, especially because patients may alter their level of activity to minimize the frequency of their angina (13). Second, the frequency of angina should be measured because this is a critical marker of disease classification (14), a prog-

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Manuscript received April 1, 1994; revised manuscript received July 21, 1994, accepted September 12, 1994.

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0735-1097/95/$9.50
0735-1097(94)00397-9

Table 1. Study Designs

Study and Pts	Reference Measure	Analysis
Validation studies		
Physical limitation		
Pts with CAD undergoing ETT	ETT duration, DASI, SAS, CCSC and SF-36	Pearson r coeff
Anginal stability		
1. Pts undergoing PTCA	1. Diagnosis of unstable angina	1. Independent *t* test
2. Pts with initially stable CAD	2. Patient's global perception of change	2. Pearson r coeff
Anginal frequency		
Pts with initially stable CAD	No. of nitroglycerin refills	Pearson r coeff
Treatment satisfaction		
Resident pts with self-reported CAD	ABIM PSQ	Pearson r coeff
Disease perception		
Pts with initially stable CAD and PTCA	SF-36 general health scale	Pearson r coeff
Reproducibility study		
Pts with stable CAD	3-mo change in SAQ scores	Paired *t* test, ICC
Responsiveness studies		
1. Pts undergoing successful PTCA	1. 3-mo change in SAQ scores	1. Paired *t* test
2. Pts with initially stable CAD	2. 3-mo change in SAQ scores	2. Paired *t* test

ABIM PSQ = American Board of Internal Medicine Patient Satisfaction Questionnaire; CAD = coronary artery disease; CCSC = Canadian Cardiovascular Society classification; coeff = coefficient; DASI = Duke Activity Status Index; ETT = exercise treadmill test; ICC = intraclass correlation coefficient; PTCA = percutaneous transluminal coronary angioplasty; Pts (pts) = patients; SAQ = Seattle Angina Questionnaire; SAS = Specific Activity Scale; SF-36 = Short Form-36.

nostic indicator (15–17) and can signal the need for therapeutic change. Third, patients' satisfaction with their treatment regimen should be quantified because it may alter therapeutic strategies and influence compliance (18). Finally, a functional status measure should assess patients' perception of how their disease limits their quality of life.

We developed a disease-specific functional status measure, the Seattle Angina Questionnaire, to quantify the physical and emotional effects of coronary artery disease. This instrument (Appendix) is a 19-item self-administered questionnaire resulting in five scales that measure clinically important dimensions of coronary artery disease: physical limitation, anginal stability, anginal frequency, treatment satisfaction and disease perception.

To be useful, a functional status measure must be valid (measure what it intends to), reproducible and responsive to clinically important changes (19,20). This report evaluates a group of studies supporting the validity, reproducibility and responsiveness of the Seattle Angina Questionnaire.

Methods

Design of the Seattle Angina Questionnaire. The physical limitation scale (question 1) is derived from the scales of Goldman et al. (11) and Feinstein and Wells (21) and measures how daily activities are limited by symptoms of coronary disease. Specific activities were chosen to minimize differences among socioeconomic classes and gender. The anginal stability scale (question 2) assesses change in the frequency of angina at patients' most strenuous level of activity. The anginal frequency scale (questions 3 and 4) is modified from the Angina Questionnaire of Peduzzi and Hultgren (22). The treatment satisfaction scale (questions 5 to 8) quantifies patients' satisfaction with their current treatment, and the disease perception scale (questions 9 to 11) characterizes the burden of coronary artery disease on patients' quality of life.

The Seattle Angina Questionnaire is scored by assigning each response an ordinal value, beginning with 1 for the response that implies the lowest level of functioning, and summing across items within each of the five scales. Scale scores are then transformed to a 0 to 100 range by subtracting the lowest possible scale score, dividing by the range of the scale and multiplying by 100. Because each scale monitors a unique dimension of coronary artery disease, no summary score is generated.

To improve response rate, the Seattle Angina Questionnaire is brief and self-administered, requiring <5 min to complete. It was designed in a machine-readable format to permit fast, easy and inexpensive data entry. Furthermore, it can supplement a broader assessment of functional status, such as the Short Form-36 (23).

Data collection. To assess questionnaire validity, reproducibility and responsiveness, we studied four distinct patient groups. Table 1 outlines each study. All investigations were approved by the University of Washington Human Subjects Committee.

Patients undergoing exercise treadmill test. All patients with coronary artery disease who had a symptom-limited treadmill test performed between November 1992 and February 1993 at a Veterans Affairs medical center and a university-affiliated outpatient clinic were studied. We considered coronary artery disease to be present if the patient had 1) a previous myocardial infarction; 2) a previous revascularization procedure or angiogram documenting coronary disease; or 3) characteristic

chest pain and abnormal treadmill test results at the time of the study.

Each patient completed, in random order, three questionnaires, including the Seattle Angina Questionnaire and the Duke Activity Status Index. Patients enrolled during the first 6 weeks of the study completed the Specific Activity Scale administered by a trained interviewer. Subjects enrolled during the second half of the study completed the physical activity questions of the Short Form-36 instead of the Specific Activity Scale. The physician administering the treadmill test completed a brief information sheet verifying the entry criteria and documenting the Canadian Cardiovascular Society Classification.

Outpatients with self-reported coronary artery disease. The treatment satisfaction scale was validated among outpatients who reported that they had coronary artery disease in response to a survey of all enrollees in an internal medicine clinic who were under the care of third-year medical residents (n = 350). We mailed these patients the Seattle Angina Questionnaire and the American Board of Internal Medicine's Patient Satisfaction Questionnaire, a valid measure of physicians' humanistic qualities (24).

Patients with initially stable coronary artery disease. The validity of the remaining three scales and the reproducibility of the entire Seattle Angina Questionnaire were studied in a cohort of patients with initially stable coronary artery disease identified from the Seattle Veterans Affairs Medical Center's computerized data base. Enrollees in the General Internal Medicine Clinic were included if they met all of the following criteria: 1) a discharge diagnosis within the previous 5 years of coronary disease; 2) a current prescription for nitroglycerin; 3) no change in antianginal medicines within the previous 9 months; 4) no hospital admissions within 2 months; and 5) no diagnostic tests for evaluation of cardiac disease during the 2 months preceding the study.

Subjects were mailed the Seattle Angina Questionnaire and the Short Form-36. Three months later a similar packet was mailed that also contained a five-point global questionnaire inquiring whether anginal symptoms had changed. Patients failing to respond were contacted by telephone to encourage completion, but questionnaires were not administered by telephone. Patients who required hospital admission or new antianginal medications during the study period were excluded from the reproducibility analysis.

Patients undergoing percutaneous coronary angioplasty. To evaluate the responsiveness of the Seattle Angina Questionnaire to clinical change, we administered it to patients undergoing coronary angioplasty, who we anticipated would experience a significant improvement in their coronary artery disease. Patients were enrolled from the cardiac catheterization laboratories of a university medical center and a Veterans Affairs medical center between September 1992 and January 1993. Patients who were hypotensive, had undergone intubation, did not speak English or were otherwise unable to complete the questionnaires were excluded. The operating physician documented the indications for the procedure, duration of symptoms and presence or absence of unstable angina. We defined unstable angina as either crescendo angina, new onset rest angina or angina requiring intravenous medications for pain control.

Three months later, we mailed subjects the Seattle Angina Questionnaire, the Short Form-36 and a questionnaire inquiring about repeat invasive cardiac procedures. Nonrespondents were telephoned and encouraged to participate, but questionnaires were not administered by telephone. Patients who underwent repeat catheterization were considered to have had unsuccessful initial revascularization and were excluded from the final analysis.

Analyses. *Validation of the physical limitation scale.* We hypothesized that the physical limitation scale would be significantly associated with patients' exercise performance duration. After adjusting for age, we correlated all administered instruments with the duration of treadmill test performance.

Validation of the anginal stability scale. Because this scale monitors change in anginal symptoms, we hypothesized that patients with unstable angina would have a lower score than those with stable angina. Using a two-sample *t* test (two-tailed), we compared anginal stability scores among angioplasty patients with and without unstable angina.

We also validated this scale in the cohort of patients with stable coronary artery disease, who, we expected, might experience mild but detectable fluctuations in their anginal severity. We correlated scores on the anginal stability scale with patients' global rating of change as assessed in the 3-month follow-up question.

Validation of the angina frequency scale. We hypothesized that patients reporting a higher frequency of angina and nitroglycerin use on the Seattle Angina Questionnaire would have more frequent refills of sublingual nitroglycerin tablets. Because the pharmacy at the Seattle Veterans Affairs Medical Center is the primary source of medications for its patients, we examined its records for our sample of patients with stable coronary disease. Anginal frequency scores were correlated with the number of nitroglycerin refills during the previous year.

Validation of the treatment satisfaction scale. We validated the treatment satisfaction scale by correlating scores for this scale with scores for the American Board of Internal Medicine's Patient Satisfaction Questionnaire among the outpatients who reported a diagnosis of coronary artery disease.

Validation of the disease perception scale. We hypothesized that this scale would correlate significantly with the general health scale of the Short Form-36, a measure of personal evaluations of health, health outlook and resistance to illness. All patients who completed both the Seattle Angina Questionnaire and the Short Form-36 served as the study group for this comparison.

Reproducibility study. To evaluate reproducibility, we used paired *t* tests (two-tailed) and intraclass correlation coefficients to analyze the 3-month change in scores observed among patients with initially stable coronary artery disease. The intraclass correlation coefficient combines information from

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Table 2. Correlations of Physical Limitation Scales With Exercise Treadmill Test Duration

Physical Limitation Measure	No. of Pts	Unadjusted r Coefficient (p value)	Age-Adjusted r Coefficient (p value)
SAQ physical score	70	0.36 (0.002)	0.42 (0.001)
DASI score	70	0.36 (0.002)	0.40 (0.001)
SF-36 physical score	26	0.29 (0.16)	0.024 (0.93)
SAS score	44	0.26 (0.09)	0.36 (0.02)
CCSC score	70	0.14 (0.24)	0.21 (0.11)

Abbreviations as in Table 1.

the *t* test and the product moment correlation to describe the proportion of total variability attributable to between-person differences (19). Higher intraclass correlation coefficients (range 0 to 1) indicate greater reproducibility.

Responsiveness study. Responsiveness to large clinical changes was tested using paired *t* tests (two-tailed) of baseline and follow-up scores among patients undergoing successful angioplasty.

Defining a smaller clinically relevant change in scores. In addition to responsiveness in patients with major clinical improvement, we sought to define a smaller clinically important change in Seattle Angina Questionnaire scores (25). Knowing the change in score that reflects a meaningful change in clinical status facilitates score interpretation and sample size calculations in clinical trials.

On the basis of patient responses to the global question inquiring about overall symptom change, we classified our sample of patients with initially stable coronary disease into three groups: those who rated their angina as worse, those who rated their angina as unchanged and those who felt their angina had improved. Using a paired *t* test (two-tailed), we compared the mean 3-month change in Seattle Angina Questionnaire scores for each group.

Results

Validation studies. *Physical limitation scale.* All 70 patients with coronary disease who underwent treadmill testing during the study period agreed to participate. The mean age was 61 years, and 95% were men. Adjusted for age, the Seattle Angina Questionnaire, the Duke Activity Status Index and the Specific Activity Scale were all significantly associated with total exercise duration (Table 2) and with each other ($r = 0.43$ to 0.84, $p < 0.001$). The age-adjusted correlation between exercise duration and the Seattle Angina Questionnaire exceeded that of all other measures.

Anginal stability scale. On this scale, lower scores indicate more frequent angina, and higher scores less frequent angina, compared with the previous month. A score of 50 indicates no change in anginal frequency at the patient's most strenuous level of activity.

We compared scores on the anginal stability scale with the presence or absence of unstable angina at the time of coronary angioplasty among patients who completed the questionnaire. The mean age of participants was 59 years, and 83% were men. Anginal stability scores were significantly lower among patients with unstable angina than among those with stable angina (21.4 vs. 39.8, $p = 0.03$).

Among the cohort of patients with initially stable angina, there was a significant correlation between the anginal stability scale and patients' perception of global change after 3 months. Of 160 questionnaires mailed to patients meeting our criteria for stable angina, 134 (84%) returned both the baseline and 3-month questionnaires. The mean age of respondents was 68, and 98% were men. Anginal stability scores correlated significantly with patients' global assessment of change ($r = 0.70$, $p < 0.0001$).

Anginal frequency scale. To establish the validity of the anginal frequency scale, we studied the 134 patients who were selected for initially stable coronary artery disease. The correlation between the angina frequency score and 1-year nitroglycerin refills was 0.31 ($p = 0.0006$).

Treatment satisfaction scale. There were 122 patients who reported a diagnosis of coronary artery disease, and 84 (69%) returned both the Seattle Angina Questionnaire and the American Board of Internal Medicine's Patient Satisfaction Questionnaire. The mean age of respondents was 67 years, and 95% were men. The two scales were highly correlated ($r = 0.67$, $p < 0.0001$).

Disease perception scale. Scores for the disease perception scale, obtained from the 134 patients with stable angina and the 58 patients undergoing angioplasty, were highly correlated with the general health perceptions scale of the Short Form-36 ($r = 0.60$, $p < 0.0001$).

Reproducibility study. Of 134 patients with initially stable coronary disease who returned both baseline and 3-month questionnaires, we excluded 17 who were either hospitalized or had received a new antianginal prescription during the study. The mean age of the remaining 117 patients was 69 years, and 97% were men.

No significant changes were observed among the Seattle Angina Questionnaire scales of patients with initially stable coronary disease during the 3-month study period (Table 3). Except for the single-item anginal stability scale, the intraclass correlation coefficients were quite high.

Responsiveness study. Of 58 patients undergoing angioplasty who completed baseline questionnaires, 48 (83%) returned the 3-month follow-up questionnaires. There were no significant differences in age, gender, diagnosis of unstable angina, duration of angina or baseline questionnaire scores between patients who returned the follow-up questionnaires and those who did not. Three patients who underwent repeat catheterization were excluded. The final analyses were performed for 45 patients with a mean age of 60.2 years; 87% were men.

Unlike the results in patients with initially stable coronary disease (Table 3), all scales except treatment satisfaction improved dramatically 3 months after successful angioplasty (Fig. 1).

Table 3. Mean 3-Month Change in Seattle Angina Questionnaire Scores Among Patients With Stable Coronary Artery Disease

Scale of the Seattle Angina Questionnaire	Baseline Mean Value	3-Month Mean Value	Mean Difference	p Value	Intraclass Correlation Coefficient
Physical limitation	50.2	51.3	1.1	0.48	0.83
Angina stability	52.0	48.2	−3.8	0.1	0.24
Angina frequency	67.5	66.5	−1	0.56	0.76
Treatment satisfaction	78.1	77.1	−1	0.44	0.81
Disease perception	56.7	56.2	−0.5	0.77	0.78

Patients with stable coronary artery disease had no change in antianginal medications for 9 months before or during the study and had no hospital admissions or diagnostic cardiac tests 2 months before or during the study.

Defining a smaller clinically relevant change in scores. Of 117 patients with initially stable angina, 28 reported worsening of their condition, 73 remained in stable condition, and 16 reported improvement. All scales decreased in the group that reported worsening, remained unchanged in the patients with initially stable coronary disease and increased among the patients who reported an improvement (Fig. 2). The changes in all but the treatment satisfaction scale were statistically significant. A change in score of 10 points equaled or exceeded a change perceptible to patients, and we interpreted this as a clinically important difference in scores. This contrasts with the improvements of 18 to 46 points seen among patients undergoing angioplasty (Fig. 2).

Discussion

The Seattle Angina Questionnaire. The Seattle Angina Questionnaire appears to be valid, reproducible and responsive. In support of its validity, we found predictable and significant correlations between each scale and other, external measures of each domain. In support of its reproducibility, mean scores did not change after 3 months of observation among patients with stable coronary artery disease. In support of its responsiveness, mean scores improved dramatically after successful angioplasty and to a lesser degree among patients experiencing smaller changes in the state of their coronary disease.

There are two primary advantages of the Seattle Angina Questionnaire over existing measures. Despite its brevity, the self-administered Seattle Angina Questionnaire quantifies a broader spectrum of disease effects than the Canadian Cardiovascular Society Classification, the Duke Activity Status Index or the Specific Activity Scale. Although these other instruments measure limitations in patients' exertional capacity, the Seattle Angina Questionnaire not only captures this domain but also quantifies patients' symptom frequency, symptom stability, satisfaction with treatment and quality of life. In addition, the Seattle Angina Questionnaire physical limitation scale captures activity limitations specific to coronary artery disease, unlike the Specific Activity Scale, the Duke Activity Status Index and the Short Form-36, which also measure the effects of other comorbid conditions.

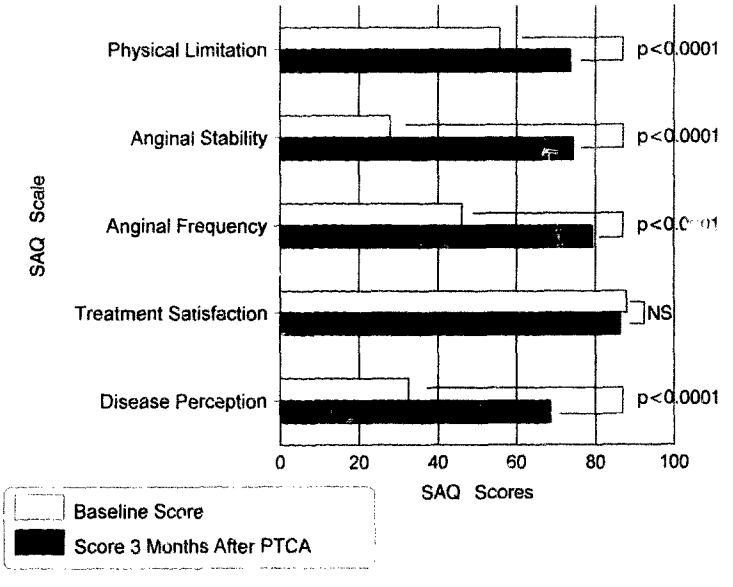

Figure 1. Mean 3-month change in Seattle Angina Questionnaire scores among patients undergoing successful coronary angioplasty (n = 45). PTCA = percutaneous transluminal coronary angioplasty; SAQ = Seattle Angina Questionnaire.

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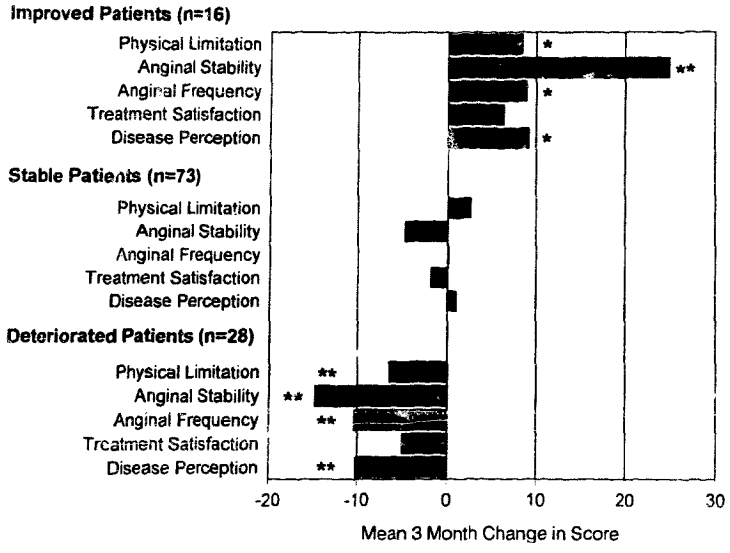

Figure 2. Mean 3-month change in Seattle Angina Questionnaire scores for subgroups of patients with initially stable coronary artery disease. Patients are grouped according to their perception of change in the state of their coronary artery disease. *p ≤ 0.05. **p ≤ 0.01.

This latter advantage is particularly important in patients with multiple medical problems. For example, if a patient with both rheumatoid arthritis and coronary disease were to have a flare-up of his or her arthritis without a change in the coronary disease, these other measures would detect a marked decrease in the patient's activity. This change in activity could be mistakenly interpreted as a worsening of the patient's coronary disease. By specifically teasing out the limitations in activity caused by symptoms of angina, we hoped to create a more accurate measure of how a patient's coronary disease influences physical activity. The reliability and responsiveness of the Seattle Angina Questionnaire suggest that we have had some success with our approach.

A common criticism of quality of life measures in clinical research is that the data are "soft." Researchers often consider that information provided by patients is less reliable than that obtained by clinicians or physiologic tests. However, some researchers have argued that the essence of "hardness" is consistency or reproducibility (27). It is noteworthy that the intraclass correlation coefficient of serial exercise treadmill tests, administered 1 day apart, is 0.70 (28), whereas that of our physical limitation scale, administered 3 months apart, is substantially higher at 0.83.

Study limitations. Validating the Seattle Angina Questionnaire was complicated by the absence of reference standards for functional status domains. Although we recognize the limitations of our comparison standards, we believe that these were the best options available. Not surprisingly, correlations with other questionnaires were higher than those of exercise duration or nitroglycerin refills. The lowest correlations were seen in validating the anginal frequency scale. Medication refills are an imperfect measure of anginal frequency because patients may not consume all of the medication received, may not use nitroglycerin with each episode of angina and may obtain prescriptions outside the Veterans Affairs system. Nevertheless, this approach has been demonstrated to be a valid method of estimating medication use, and our correlations approximate those observed between antihypertensive drug refills and diastolic blood pressure reduction or anticonvulsant agent refills and plasma drug levels (26).

The predominance of elderly men in our study, largely reflecting the clientele of a Veterans Affairs medical center, may limit the generalizability of our findings. However, the high prevalence of comorbid conditions among this population attests to the specificity of the Seattle Angina Questionnaire in monitoring the unique functional limitations of coronary disease. Additional studies should be performed in women and other socioeconomic groups to verify our findings. An additional caveat of our questionnaire is the focus of several scales on anginal symptoms. Although patients with atypical symptoms or silent ischemia may have difficulty answering these questions, none of our studies restricted entry to only those with classical symptoms. Nevertheless, the Seattle Angina Questionnaire may have limited use in these populations.

The incomplete response rate of study subjects to our mailed questionnaires may represent a final potential limitation of our study. Although we detected no baseline differences between those who responded to follow-up questionnaires and those who did not, we cannot exclude a potential bias in our results from the failure of all study participants to return follow-up questionnaires.

Conclusions. The use of functional status instruments as an outcome in clinical research is a promising technique. Indeed, a major thrust of current efforts to characterize treatment outcome is toward measures that are highly relevant to both patients and society. In general, this includes direct measures of health-related quality of life. Reliable and valid measures, such as the Seattle Angina Questionnaire, can serve an important role as sensitive and clinically meaningful outcome measures in cardiovascular research.

Appendix

The Seattle Angina Questionnaire

1. The following is a list of activities that people often do during the week. Although for some people with several medical problems it is difficult to determine what it is that limits them, please go over the activities listed below and indicate how much limitation you have had **due to chest pain, chest tightness, or angina** over the past 4 weeks.

Place an x in one box on each line.

Activity	Severely Limited	Moderately Limited	Somewhat Limited	A Little Limited	Not Limited	Limited, or did not do for other reasons
Dressing yourself	❑	❑	❑	❑	❑	❑
Walking indoors on level ground	❑	❑	❑	❑	❑	❑
Showering	❑	❑	❑	❑	❑	❑
Climbing a hill or a flight of stairs without stopping	❑	❑	❑	❑	❑	❑
Gardening, vacuuming, or carrying groceries	❑	❑	❑	❑	❑	❑
Walking more than a block at a brisk pace	❑	❑	❑	❑	❑	❑
Running or jogging	❑	❑	❑	❑	❑	❑
Lifting or moving heavy objects (e.g. furniture, children)	❑	❑	❑	❑	❑	❑
Participating in strenuous sports (e.g. swimming, tennis)	❑	❑	❑	❑	❑	❑

2. Compared with 4 weeks ago, how often do you have **chest pain, chest tightness, or angina** when doing your **most strenuous** level of activity?
I have had **chest pain, chest tightness,** or **angina**...

Much more often	**Slightly more** often	About **the same**	**Slightly less** often	**Much less** often
❑	❑	❑	❑	❑

3. Over the past 4 weeks, on average, how many times have you had **chest pain, chest tightness, or angina?**
I get **chest pain, chest tightness,** or **angina**...

4 or more times per day	1-3 times per day	3 or more times per week but not every day	1-2 times per week	Less than once a week	None over the past 4 weeks
❑	❑	❑	❑	❑	❑

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4. Over the past 4 weeks, on average, how many times have you had to take nitros (nitroglycerin tablets) for your **chest pain, chest tightness,** or **angina?**
I take nitros...

4 or more times per day	1-3 times per day	3 or more times per week but not every day	1-2 times per week	Less than once a week	None over the past 4 weeks
☐	☐	☐	☐	☐	☐

5. How bothersome is it for you to take your pills for **chest pain, chest tightness or angina** as prescribed?

Very bothersome	**Moderately** bothersome	**Somewhat** bothersome	**A little** bothersome	**Not** bothersome at all	My doctor has **not prescribed** pills
☐	☐	☐	☐	☐	☐

6. How satisfied are you that everything possible is being done to treat your **chest pain, chest tightness, or angina**?

Not satisfied at all	Mostly dissatisfied	Somewhat satisfied	Mostly satisfied	Highly satisfied
☐	☐	☐	☐	☐

7. How satisfied are you with the explanations your doctor has given you about your **chest pain, chest tightness, or angina**?

Not satisfied at all	Mostly dissatisfied	Somewhat satisfied	Mostly satisfied	Highly satisfied
☐	☐	☐	☐	☐

8. Overall, how satisfied are you with the current treatment of your **chest pain, chest tightness, or angina**?

Not satisfied at all	Mostly dissatisfied	Somewhat satisfied	Mostly satisfied	Highly satisfied
☐	☐	☐	☐	☐

9. Over the past 4 weeks, how much has your **chest pain, chest tightness, or angina** interfered with your enjoyment of life?

It has **severely** limited my enjoyment of life	It has **moderately** limited my enjoyment of life	It has **slightly** limited my enjoyment of life	It has **barely** limited my enjoyment of life	It has **not** limited my enjoyment of life
☐	☐	☐	☐	☐

10. If you had to spend the rest of your life with your **chest pain, chest tightness, or angina** the way it is right now, how would you feel about this?

Not satisfied at all	Mostly dissatisfied	Somewhat satisfied	Mostly satisfied	Highly satisfied
❑	❑	❑	❑	❑

11. How often do you worry that you may have a heart attack or die suddenly?

I can't stop worrying about it	**I often think** or worry about it	**I occasionally** worry about it	**I rarely think** or worry about it	**I never think** or worry about it
❑	❑	❑	❑	❑

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