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CAN URBAN METHADONE PATIENTS COMPLETE HEALTH UTILITY ASSESSMENTS?

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Abstract

Objective—To assess the ability of methadone maintenance treatment (MMT) patients to use two standardized health assessment tools to value health states related to chronic hepatitis C virus (HCV) infection and HCV treatment-associated side effects. An estimated 65–90% of MMT patients are chronically infected with HCV.

Methods—We employed qualitative methods to explore how patients completed computerized rating scale assessments and standard gamble utility assessments by 1) having them discuss their responses in a think-aloud interview immediately after each health state assessment, and 2) allowing them the opportunity to recalibrate prior responses after considering subsequent health states.

Results—MMT patients used the rating scale boundaries appropriately and used the standard gamble to rank the health states in an *a priori* logical order. A guided assessment approach that allowed recalibration provided additional insight into values assigned to the health states presented.

Conclusion—MMT patients are able to perform the tasks associated with rating scale assessments and standard gamble utility assessments of HCV health states.

Practice Implications—These assessment methods should be considered as a means to elicit MMT patients' values for HCV treatment, since the treatment outcome is uncertain but it is likely that side effects will adversely affect current health.

Keywords

Health Utility Assessment; Hepatitis C Treatment; Methadone Maintenance Treatment

1. INTRODUCTION

In 2003, approximately 227,000 patients were enrolled in methadone maintenance treatment (MMT) programs in the United States, and it is estimated that 65–90% of MMT patients are infected with the hepatitis C virus (HCV) [1–4]. Revised guidelines have led to recommendations that the decision to initiate HCV treatment should include patient preferences based on individualized risk-benefit assessments, made jointly by patients and physicians, particularly for patients with a recent history of drug or alcohol abuse [5,6].

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Health assessments methods, like the rating scale and standard gamble, indicate how respondents value their current health or a hypothetical health state [7]. Although the rating scale is not technically a utility assessment, both rating scale and standard gamble results are often used to establish health utility values, which are measures of health-related quality of life that reflect the health preferences of the respondents [8]. Health utility values are used to calculate quality-adjusted life years, which combine morbidity and mortality effects into a single outcome and are frequently used as a measure of comparative effectiveness in cost-effectiveness analyses of medical interventions [9,10].

In this study, we assessed the rating scale and standard gamble as patient-reported outcomes that reveal how HCV patients value their current health and hypothetical health states related to HCV. It is important to consider utility values from the perspective of HCV patients, because there can be differences between utility values for HCV health states collected from patients versus providers [11–16]. Several factors associated with MMT patients, such as non-fatal overdoses, increased likelihood of head injuries, concurrent alcohol dependence, and methadone treatment itself have led some researchers to suggest that MMT patients as a group are cognitively impaired on a range of measures that could adversely impact their ability to perform the tasks associated with these assessments [17–20].

We used qualitative methods to assess how MMT patients evaluated their current health and hypothetical health states using the rating scale and standard gamble assessments. As part of this evaluation, we investigated an alternative utility elicitation approach in which we reminded patients of their previous responses and allowed them to recalibrate answers. [21]. This allowed us to assess how their preferences for each health state compared to an *a priori* logical rank order of the health states.

2. METHODS

We conducted semi-structured interviews with a purposive sample ($n=23$) of HCV-infected patients recruited from a university-affiliated MMT program in New York City. Patients who were HCV infected and treatment naïve were identified by clinical staff, who assisted in recruitment. This study was approved by the institutional review board of Weill Cornell Medical College.

Subjects were presented with computerized rating scale and standard gamble assessments for current health (Figures 1a and 1b). The poles for the rating scale were anchored at 0=“Death or Worst Possible Health” and 100=“Perfect or Best Possible Health.” The standard gamble was a choice between living with their current health and an imaginary pill that has an x % chance of restoring them to perfect health, but a $(1-x)$ % chance that it would lead them to die in their sleep. Assessments were followed by an audio taped, think-aloud interview where subjects were asked to describe how they formed their responses (Appendix 1).

Current health assessments were followed by assessments of four hypothetical health states derived from the literature [13,14,22], representing mild and moderate chronic HCV symptoms and moderate and severe HCV treatment-induced side effects (Appendix 2). Subjects were reminded by the interviewer of their previous responses for current and hypothetical health states and asked if their current answer was accurate in comparison. Logical inconsistencies in the ordering of health states for each assessment method were brought to the subjects’ attention by the interviewer, in order to determine if these inconsistencies were due to poor recall or actual preference. Subjects could then adjust their current or previous responses.

Using an approach informed by grounded theory [23], transcripts from the think-aloud interviews were analyzed for comments expressing attitudes or beliefs that influenced responses (e.g., attitude towards gambling, or belief that one’s current health is better or worse

than the hypothetical health state). Qualitative methods, such as semi-structured interviews, are considered an appropriate approach for identifying narrative themes, such as patients' health preferences, that can enhance researchers' understanding of patients' health assessments [24]. We compared patients' responses to interviewer notes and quantitative data, and assessed how willing subjects were to 'play the game' of the standard gamble by comparing standard gamble values for hypothetical health states to current health values.

3. RESULTS

The sample included 17 (74%) men and 6 (26%) women with a mean age of 48 (Table 1). Self-reported current health status using the rating scale and standard gamble was low compared to the U.S. average scores. Most (74%) subjects' standard gamble utility assessment scores were higher than their rating scale scores, which is consistent with the relationship between these scores typically observed literature [25–28]. Four subjects (17%) were highly risk-averse on the standard gamble and discussed their dislike for gambling, which is consistent with the prevalence of this attitude toward risk reported in studies conducted in other settings [29,30]. Five subjects (22%) responded to the description of moderate chronic HCV as being "the same" or "exactly like" their current health. Twelve (52%) subjects recalibrated their responses to adjust for more or less severe health states. Some subjects recalled their previous responses and asked to adjust a previous answer in response to the current question. Other subjects appeared to go through the process internally, recalibrating answers from that point forward, without changing previous responses. Several subjects adjusted their evaluations of their current health downwards after considering a hypothetical health state that closely matched their own current health. For example, after being presented with the description of the health state that represented moderate symptoms of chronic HCV infection one subject responded: *"That's me, 100%, that's me. I'm seeing all the variables up there and all that's exactly what I got."* When probed as to why he now wanted to rate his current health lower, he replied: *"Well I just went for that number (his initial score of 0.25) because I thought it was gonna be a little bit higher ... I wasn't thinking you were going to show me exactly what I was feeling ... it hit me"* implying that the description of the health state made him aware of all the symptoms he was actually experiencing.

4. DISCUSSION

4.1. Discussion

Based on updated treatment guidelines, more HCV-infected MMT patients are being evaluated for HCV treatment [31,32]. MMT patients are an obvious group to target for treatment because they have a high prevalence of chronic HCV and are already engaged in clinical care settings [32,33]. Evaluations of MMT patients for HCV treatment will implicitly or explicitly involve assessments of these patients' values for different health states. We found that rating scale assessments and standard gamble utility assessments could be completed by MMT patients. Subjects used the rating scale boundaries appropriately, putting them into concrete terms, and understood the premise of gambling with their health in the standard gamble. They 'played the game' of evaluating hypothetical health states appropriately, ranking health states in an *a priori* logical order and accepting a greater gamble when presented with a worse health state.

Some studies of inconsistent responses and violations of procedural invariance have suggested that recalibration should be allowed, especially with patients who may experience difficulties with these health assessment tasks [21,34]. Although interviewer interactions with subjects are generally not encouraged in utility assessments in the general population [35], we found that MMT patients were helped by reminders of their previous responses. Decisions to recalibrate previous responses after being presented with a new hypothetical health state description were

interpreted as evidence that the subjects were able to evaluate hypothetical health states in a thoughtful manner and in keeping with the tasks of the assessment.

However, a limitation of our study methods is that we were unable to quantitatively assess reliability and validity of responses. Therefore, we cannot state that the recalibration method would increase the reliability of the assessments, and recalibration could instead lead to more unstable responses. Our qualitative findings are limited by our small sample size and, because our study was conducted among MMT patients only, we cannot determine whether our findings are generalizable beyond this population.

4.2. Conclusion

MMT patients are able to perform the tasks associated with rating scale assessments and standard gamble utility assessments of HCV health states. Further investigation of these elicitation approaches is warranted in this and other populations where health assessments are thought to be difficult to obtain. This will contribute to more effective patient-centered discussions of the value of treatment and a more truly shared decision-making process.

4.3. Practice Implications

Rating scale and standard gamble assessment methods should be considered as a means to elicit MMT patients' values for HCV treatment, since the treatment outcome is uncertain but it is likely that side effects will adversely affect current health.

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Abbreviations

HCV	hepatitis C virus
MMT	methadone maintenance therapy

References

1. U.S. Department of Health and Human Services, S.A.M.H.S.A. National Survey of Substance Abuse Treatment Services (N-SSATS) 2003. 2003. Office of Applied Studies.
2. Hagan H, et al. Sharing of drug preparation equipment as a risk factor for hepatitis C. *Am J Public Health* 2001;91(1):42–6. [PubMed: 11189822]
3. Hahn JAP-SK, Lum PJ, Bourgois P, Stein E, Evans JL, Busch MP, Tobler LH, Phelps B, Moss AR. Hepatitis C virus seroconversion among young injection drug users: relationships and risks. *The journal of infectious diseases* 2002;186(11):1558–1564. [PubMed: 12447730]
4. Hall CS, et al. Hepatitis C virus infection in San Francisco's HIV-infected urban poor. *J Gen Intern Med* 2004;19(4):357–65. [PubMed: 15061745]
5. U.S. Department of Health and Human Services, N.I.H., Consensus Development Program. National Institutes of Health Consensus Development Conference Statement: Management of hepatitis C: 2002–June 10–12, 2002. *Hepatology* 2002;36(5 Suppl 1):S3–20. [PubMed: 12407572]
6. Edlin BR, et al. Overcoming barriers to prevention, care, and treatment of hepatitis C in illicit drug users. *Clin Infect Dis* 2005;40 Suppl 5:S276–85. [PubMed: 15768335]

7. Bennett, K.; Torrance, G. Measuring health state preferences and utilities: rating scale, time-tradeoff, and standard gamble techniques. In: Spilker, B., editor. *Quality of Life and Pharmacoeconomics in Clinical Trials*. 2. Lippincott –Raven; Philadelphia: 1996. p. 253-265.
8. Drummond, M., et al. *Methods for the Economic Evaluation of Health Care Programs*. 3. Oxford: Oxford University Press; 2005.
9. Brauer C, et al. Trends in the measurement of health utilities in published cost-utility analyses. *Value Health* 2006;9(4):213–8. [PubMed: 16903990]
10. Gold, M., et al. *Cost-Effectiveness in Health and Medicine*. New York: Oxford University Press; 1996.
11. Chong CA, et al. Health-state utilities and quality of life in hepatitis C patients. *Am J Gastroenterol* 2003;98(3):630–8. [PubMed: 12650799]
12. Mrus JM, et al. Health values of patients coinfectd with HIV/hepatitis C: are two viruses worse than one? *Med Care* 2006;44(2):158–66. [PubMed: 16434915]
13. Patil R, et al. Physicians' preference values for hepatitis C health states and antiviral therapy: a survey. *BMC Gastroenterol* 2001;1(1):6. [PubMed: 11513756]
14. Sherman KE, et al. Health values of patients with chronic hepatitis C infection. *Arch Intern Med* 2004;164(21):2377–82. [PubMed: 15557419]
15. Younossi ZM, et al. Health-related quality of life in chronic liver disease: the impact of type and severity of disease. *Am J Gastroenterol* 2001;96(7):2199–205. [PubMed: 11467653]
16. Schackman BR, et al. Quality-of-life tradeoffs for hepatitis C treatment: do patients and providers agree? *Med Decis Making*. In press
17. Mintzer MZ, Stitzer ML. Cognitive impairment in methadone maintenance patients. *Drug and Alcohol Dependence* 2002;67(1):41–51. [PubMed: 12062778]
18. Verdejo A, et al. Neuropsychological functioning in methadone maintenance patients versus abstinent heroin abusers. *Drug and Alcohol Dependence* 2005;78(3):283–288. [PubMed: 15893159]
19. Darke S, et al. Cognitive impairment among methadone maintenance patients. *Addiction* 2000;95(5):687–95. [PubMed: 10885043]
20. Mintzer MZ, Copersino ML, Stitzer ML. Opioid abuse and cognitive performance. *Drug and Alcohol Dependence* 2005;78(2):225–230. [PubMed: 15845327]
21. Lenert LA, Treadwell JR. Effects on preferences of violations of procedural invariance. *Med Decis Making* 1999;19(4):473–81. [PubMed: 10520685]
22. Montgomery AA, Harding J, Fahey T. Shared decision making in hypertension: the impact of patient preferences on treatment choice. *Fam Pract* 2001;18(3):309–13. [PubMed: 11356740]
23. Strauss, AL.; Corbin, JM. *Basics of qualitative research: grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications; 1990.
24. Coast J. The appropriate uses of qualitative methods in health economics. *Health Econ* 1999;8(4):345–53. [PubMed: 10398527]
25. Bayoumi AM, Redelmeier DA. Economic methods for measuring the quality of life associated with HIV infection. *Qual Life Res* 1999;8(6):471–80. [PubMed: 10548862]
26. Groome PA, et al. The repeatability of three methods for measuring prospective patients' values in the context of treatment choice for end-stage renal disease. *J Clin Epidemiol* 1999;52(9):849–60. [PubMed: 10529026]
27. Jansen SJT, et al. Stability of Patients' Preferences for Chemotherapy: The Impact of Experience. *Med Decis Making* 2001;21(4):295–306. [PubMed: 11475386]
28. Soucek J, et al. A trial for comparing methods for eliciting treatment preferences from men with advanced prostate cancer: results from the initial visit. *Med Care* 2000;38(10):1040–50. [PubMed: 11021677]
29. Bravata DM, et al. Invariance and inconsistency in utility ratings. *Med Decis Making* 2005;25(2):158–67. [PubMed: 15800300]
30. Fowler FJ Jr, et al. The role of reluctance to give up life in the measurement of the values of health states. *Med Decis Making* 1995;15(3):195–200. [PubMed: 7564932]
31. Schackman BR, Teixeira PA, Beeder AB. Offers of Hepatitis C Care Do Not Lead to Treatment. *J Urban Health*. 2007

32. Litwin AH, Soloway I, Gourevitch MN. Integrating services for injection drug users infected with hepatitis C virus with methadone maintenance treatment: challenges and opportunities. *Clin Infect Dis* 2005;40 Suppl 5:S339–45. [PubMed: 15768345]
33. Sylvestre DL. Treating hepatitis C virus infection in active substance users. *Clin Infect Dis* 2005;40 Suppl 5:S321–4. [PubMed: 15768341]
34. Badia X, Roset M, Herdman M. Inconsistent responses in three preference-elicitation methods for health states. *Soc Sci Med* 1999;49(7):943–50. [PubMed: 10468398]
35. Torrance GW. Measurement Of Health State Utilities For Economic Appraisal. *Journal of Health Economics* 1986;5:1–30. [PubMed: 10311607]

APPENDIX 1

Probes For Responses To The Rating Scale Assessment Of Current Health

- What came to mind when you heard the phrase, “Perfect, or best possible health”
- Did you think about a time in your life when you felt at your best? If yes, when was that and how did you feel when you were physically feeling your best, your most healthy? Or did you fantasize what perfect health means to you? If yes; what is your fantasy of perfect health –what does that mean to you?
- So how did you come up with that number? Tell me what was going through your mind when you decided that was the number that best indicates how you feel, on a scale from 0 to 100.

Probes for responses to the standard gamble assessment of current health

- By choosing X%, were you thinking more about the fact that there was a Y% chance you would die in your sleep, or that you were willing to take a X% chance of having perfect health?
- What were you thinking more about; the chance of perfect health or the chance you would die in your sleep?
- When you thought about taking a chance to have ‘perfect health’, what did that mean to you (what did ‘restore you to perfect health’ mean to you?)
- When you read/heard the question, did the idea of a ‘magic pill’ make sense to you? That is, did you think we were talking about a treatment, or asking you to fantasize about something that does not exist?

Probes for the hypothetical health states include questions similar to those asked for current health, with the addition of the following

- Did you come up with the number for your answer, X, by thinking about how you would feel living with those symptoms compared to being in perfect health or compared to your current health?
- When you were thinking about having these symptoms, were you thinking you would feel the symptoms *on top of* your current health, or *instead of* your current health? That is, if you have other limitations not mentioned in the description, did you think that you would still have them and feel the symptoms described ON TOP of your current health, or did you think that you would ONLY have the symptoms and limitations described?

- You said your current health was X, and that if you had these symptoms you would feel Y (or the same as X). Does that mean that if you had the symptoms described you would feel better/worse/the same as you do today?
- You said that (symptom/side effect X) would really bother you; why is that? Have you ever experienced X before, or do you have some other experience with X that makes it more of an issue to you?

APPENDIX 2

Hypothetical Health State Descriptions

Mild Chronic HCV Symptoms

Imagine you had an illness that caused you to:

Feel not well rested

Tire easily

Limit your physical activities such as walking or climbing stairs, carrying groceries, or participating in sports

Moderate Chronic HCV Symptoms

Imagine you had an illness that caused you to:

Have disturbed sleep

Usually feel tired

Limit your physical activities such as walking or climbing stairs, carrying groceries, or participating in sports

Limit your physical activities such as work

Have little interest in sex

Moderate HCV Treatment Side Effects

Imagine the treatment has the following side effects:

You have flu-like symptoms that are worst on the day after the weekly injection. When you feel like this you will have some of the following symptoms:

Fever

Nausea and vomiting

Diarrhea

Headache

Aches and pains

Weight loss

Be tired or fatigued

Spend a little more time than usual resting

You may also experience at least one and maybe more of the following:

Need to take over the counter medicine for your aches and pains

Avoid heavy chores, like moving furniture
Avoid strenuous leisure activities
Have mild depression or the 'blues'
Have less interest in sex than usual

Severe HCV Treatment Side Effects

Imagine the treatment has different side effects:

You have severe flu-like symptoms that are worst on the day after the weekly injection. When you feel like this you will have some of the following symptoms:

Very high fever
Frequent vomiting
Severe diarrhea
Severe headache
Severe aches and pains
Loss of appetite and significant weight loss
Severe sleepiness
Feel so tired that you spend more than half your time in bed.

You may also experience at least one and maybe more of the following:

Need to take strong medicine for your aches and pains
Have no ability to do light chores around the house, like wash dishes
Have no ability to do light leisure activities, like go for a walk
Have difficulty bathing and dressing yourself
Have moderate to suicidal depression
Have difficulty thinking or confusion
Have no interest in sex

Figure 1.

Figure 1a. Screen shots of Rating Scale assessments for current health.

Figure 1b. Screen shots of Standard Gamble assessments for current health.

Table 1

MMT Subject Characteristics.

Demographic Characteristics	n	
Mean age in years	23	48
Gender		
Male	17	74%
Race/Ethnicity		
African-American	3	13%
Hispanic/Latino	6	26%
White / Non-Hispanic	14	61%
Education		
Less than high school	8	35%
High school graduate	6	26%
Some college	6	26%
College graduate or above	3	22%
Income		
Annual income <\$10,000	13	57%
Annual income \$10,000–25,000	9	39%
Annual income >\$25,000	1	4%
HIV Status		
HIV-infected	5	22%