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Measuring Satisfaction With Treatment: Application to Migraine Headaches

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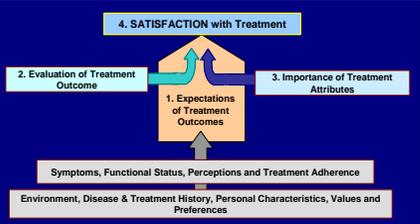
BACKGROUND

- ◆ Presentation of conceptual model built on Weaver, et al. (Am J Managed Care, 1997;3:579-594).
- ◆ Need for a broad, generic approach to the assessment of treatment satisfaction
- ◆ Incorporate progress from marketing research
- ◆ Previous work suggested that treatment satisfaction be developed with a more individualized approach

OBJECTIVES

- ◆ Develop conceptual model and measurement model for 4-part assessment of patient satisfaction with treatment.
- ◆ Evaluate feasibility
- ◆ Develop preliminary scoring algorithm
- ◆ Design future research to validate measure and scoring

Refined Conceptual Model



The Four Part Assessment Strategy (the Migraine Treatment Satisfaction Measure, MTSM)

- 1. Expectations of treatment**
 (about the outcomes of their treatment in the nine areas identified by patients as primary attributes about migraine treatment)
- 2. Rating of treatment outcome**
 (with respect to each of the nine attributes)
- 3. Rating of importance of treatment attributes**
 (of each of the nine attributes about migraine treatment)
- 4. Rating of treatment satisfaction**
 (for each of the nine attributes)

METHODS

Qualitative Process

- ◆ Qualitative interviews with 5 clinicians (in US (WA, MO, TN, MI) and UK)
- ◆ Qualitative interviews on migraine patients at 4 sites (MO, WA, NC, and AK)
- ◆ Content analysis of transcriptions
- ◆ Initial list of 29 items developed (and later reduced to 16)
- ◆ Items written into multi-component structure for importance, expectations and satisfaction expressions for each construct
- ◆ Cognitive debriefing on 23 additional migraine patients (11 in US, 12 in UK)
- ◆ Evaluate time to complete: Importance ranking exercise (approximately 3 minutes), Expectations (approximately 3 minutes), Satisfaction with treatment (approximately 3 minutes)
- ◆ Problematic items were dropped or revised
- ◆ Minor formatting revisions (i.e., bolded highlights) were added

Nine Attributes of Migraine Treatment

To have **total relief** from my migraine pain
 To have my migraine pain **relieved quickly**
 During a migraine, to be **free of pain for a long time**
 Other than pain, to have **no additional migraine symptoms** that bother me
 To have **confidence** this treatment will work
 To have migraines cause **less disruption** in my life
 To have my migraine relieved with **just one dose of medication**
 As the medication wears off, to have **freedom from migraine pain returning**
 To have a treatment that is **easy to use**

- ◆ Develop a practical scoring approach that expresses the conceptual model where the final satisfaction rating is some function of expectations, importance, and outcomes. This will be done by assessing the difference between expectations and outcomes as well as the degree of importance of each attribute.

Recruitment Methods

- ◆ Two clinic sites - Palm Beach Neurology Center, a free-standing clinic in North Palm Beach, Florida; Swedish Neuroscience Institute for Headache, a hospital-based clinic in Seattle, Washington. Each responsible for recruiting 15 migraineurs
- ◆ Inclusion criteria: 18 years of age, current/new migraine treatment, read/write English, come to clinic, sign informed consent
- ◆ Participants visiting clinician for change in medication meeting inclusion criteria invited to participate
- ◆ Reminder calls made prior to each scheduled visit for patients at each site
- ◆ In-person interviews

RESULTS

Table 1: Population Characteristics

	Seattle, Washington (n=15)	Palm Beach, Florida (n=14)	Total (n=29)
Age (mean and SD)	40.3 ± 11.8	40.3 ± 11.8	40.3 ± 11.8
Gender (% Female)	93.3	100.0	96.6
Ethnicity (% Caucasian)	86.7	85.7	86.2
Marital Status (% married)	53.4	50.0	51.8
(% divorced/separated)	26.6	35.7	31.0
(% never married)	20.0	14.3	17.2
Living Situation (% living alone)	33.3	21.4	27.6
(% living with spouse)	20.0	28.6	24.1
Education (% college graduate)	80.0	35.6	58.5
Income (% > \$35,000)	66.6	71.4	69.0

Rate of 29-item expectations:
 22 started a 29-item questionnaire, complete questionnaire answered 12 of the 29 were correct on a 10-point importance scale
 2 were on a 4-point but started 1 and ended on 10
 4 were on an analogic and started a new analogic
 1 was on an ordinary measure and started participant (a non-migraineur drug which is not used for headaches)

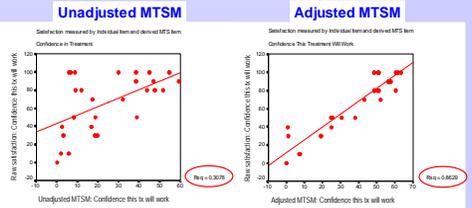
Table 2: Scale Reliability: Cronbach alpha

Item	Items in the scale	Alpha
Expectations Scale	9	0.88
Outcome Scale	9	0.84
Importance Scale	9	0.82

Scoring Results

- ◆ Following the initial step of calculating the difference between expectations and outcomes (see Step 1), the use of the raw importance values to directly provide weights to the satisfaction variables was found to have a disproportionately large effect on the final satisfaction score.
 - ◆ Hence, we employed a regression analysis to identify the contribution that each factor had on the final patient-reported level of satisfaction. For each attribute, the patient reported (raw) satisfaction was entered as the dependent variable and the independent variables were the outcomes/expectation difference and the importance rating. This produced 9 pairs of regression coefficients which were averaged for final weights.
 - ◆ Scoring method proposed involves a number of weighting assumptions (i.e., linearly, small sample)
- Step 1: Calculate a score by subtracting expectation (1-5) from outcome (1-5). This is the difference between what you thought would happen and what really happened. Higher scores represent expectations met and lower scores indicate expectations not met.
 - Step 2: Calculate the impact of "importance": first multiply the results from step 1 by 0.96, then multiply the raw value of the importance ranking by 0.04. (0.96 and 0.04 are adjusted weight values derived from the regression).
 - Step 3: Sum the two values produced in step 2 and divide by 10 to get back to a 0-10 point scale producing the final weight that gets applied to the raw satisfaction score.
 - Step 4: Calculate treatment satisfaction values for each item by multiplying the raw individual satisfaction item response with the weighted variable resulting from step 3. This results in a derived satisfaction variable for each item. Higher scores indicate greater satisfaction.
 - Step 5: Calculate the final MTSM (Migraine Treatment Satisfaction) score by summing all nine treatment-satisfaction values and dividing by nine

Figure 1: Case Examples Raw satisfaction result plotted by the derived (MTSM) satisfaction score for Attribute E (confidence in treatment)



Scale Validity

Because of the primary impact of migraine on life disruption, we hypothesized that the total derived migraine treatment satisfaction (MTS) score would have stronger associations with the work and social domains of the Migraine Quality of Life Questionnaire (MQoLQ).

Results: the MTS scores were more highly correlated with the work (0.50, p<0.01) and social (0.46, p<0.05) domains of the MQoLQ than the other domains [symptom (0.40, p<0.05), feelings/concerns (0.43, p<0.05), and energy/vitality (0.29, ns)].

Figure 2: Case Examples

Item Profile A: To have total relief from my migraine pain
 Example of 5 patients who all registered a score of 8.0 on the raw satisfaction item

ID	Expected relief value (E)	Individual relief value (O)	Importance of (I)	Raw satisfaction score of (R)	Derived MTS for Item E	Expected greater relief than anticipated, and rated attribute very high in importance.
ID 40	5	10	10	60.77	60.77	
ID 11	5	10	10	50.82	50.82	Slightly lower score due to lower weight of outcome and importance.
ID 38	5	10	10	41.02	41.02	Expected a high score because of high importance of this attribute.

Item Profile B: To have my migraine pain relieved quickly
 Example of 5 patients who all registered a score of 8.0 on the raw satisfaction item

ID	Expected relief value (E)	Individual relief value (O)	Importance of (I)	Raw satisfaction score of (R)	Derived MTS for Item B	Score difference came from treated attributes and high importance weighting of this attribute.
ID 5	5	10	10	31.10	31.10	
ID 32	5	10	10	23.95	23.95	
ID 2	5	10	10	2.26	2.26	Extremely low score is due to weighting only but not for a long time, having long migraines and only moderate satisfaction.

CONCLUSION

- ◆ We have developed a measurement strategy to reflect treatment related "satisfaction" for patients with migraine headaches.
- ◆ The measurement and scoring algorithms use patient expectations, weighted by subjective importance of symptoms and the actual treatment experience, to reflect patient satisfaction with their treatment in a more meaningful way.
- ◆ This early effort is limited by a very small dataset and requires further investigation. Work is underway to further develop and refine this measure.
- ◆ Does this mode apply to other conditions?