The Global Assessment of Pain and Related Symptoms

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Components of a Question

- Dimension(s) covered
- Type of question
  - (e.g., rating, change, agreement)
- Time frame
  - (e.g., days, months, last visit, start of study)
- Scale used to collect response
  - (e.g., NRS, VAS, verbal, change scale)
- Collected from whom?
  - (e.g., patient, doctor, family, insurance adjuster)
Global Questions - Terminology in the Literature

- global indicator
- global measure
- global perception of change
- global impression of change
- global response
- global assessment
- overall status
- single-item response
- medication performance
- transition question
- patient satisfaction
What do we mean by “global”?

Webster’s Collegiate Dictionary:

Global is defined as

– universal or
– comprehensive

Global = Overall?

Satisfaction—
is not the same thing
Global Question - What Dimension?

- Global Status
- Global Health
- Global Quality of Life?
- Overall Mood
- Overall Function
- Global Pain
Global Question – Rating vs Change

• Global Rating
  – 0-10 NRS, VRS, VAS?
  – Verbal

• Global Change (Transition)
  – Numeric scales are harder to interpret
  – Verbal scales have meaning and is easier to clinically interpret

Overall how would you rate your quality of life:

0 1 2 3 4 5 6 7 8 9 10
Worst Possible  Best Possible

Much Worse  Worse  A little Worse  No Change  A little Better  Better  Much Better
Global Change (Transition) – Time Frame

- Hour, day, month, year
- Since last visit, change in medication
- Start of study
The Association Between the Brief Pain Inventory and the Patient Global Impression of Change
RCT Study Description
Pregabalin - Multiple Diseases

• Data on 2,724 subjects from 10 recently completed placebo-controlled clinical trials of pregabalin

• Diabetic neuropathy (3), postherpetic neuralgia (3), chronic low back pain (2), fibromyalgia (1) and osteoarthritis (2).
Study Description - Pregabalin (cont)

• All studies measured pain intensity (0-10 NRS)
  0 1 2 3 4 5 6 7 8 9 10

and patients global impression of change (PGIC)

Since the start of the study, my overall status is:

1 □ Very Much Improved
2 □ Much Improved
3 □ Minimally Improved
4 □ No Change
5 □ Minimally Worse
6 □ Much Worse
7 □ Very Much Worse

• Compared change in pain intensity (PI-NRS) to the PGIC level


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Important Issues in the Analysis of Pain Intensity Data

• Are pain data consistent across studies?
• How do patient’s interpret Likert pain scales?
• What cut-off value is the best representation of clinical importance?
• How should the data be analyzed?
• How should the data be presented to be most clinically useful?
Are Pain Data Consistent With PGIC Across Ten Studies? Yes

Percent Reduction of Pain Diary Scores from Baseline to Endpoint

-80 -70 -60 -50 -40 -30 -20 -10 0 10 20 30 40 50 60 70 80

Very Much Worse / Much Worse Minimally Worse No Change Minimally Improved Much Improved Very Much Improved

PGIC Category

How Do Patient’s Report Change Using the NRS Pain Scales?

- Possible Interpretations
  - Raw pain intensity difference (PID)
  - Percent pain intensity difference (%PID)

- How does this compare to the PGIC?
Reduction of Pain Diary Scores from Baseline to Endpoint

PGIC Category

BP = 4
BP = 5
BP = 6
BP = 7
BP = 8
BP = 9

Pain Intensity Difference Values Separate When Stratified by Baseline Pain Intensity
Percent Pain Intensity Difference Values Overlap When Stratified by Baseline Pain Intensity

Percent Reduction of Pain Diary Scores from Baseline to Endpoint

PGIC Category

BP = Baseline Pain

BP = 4
BP = 5
BP = 6
BP = 7
BP = 8
BP = 9
Comparing Multi-item Quality of Life and Single Global
Multi-Item Total Score is Determined by the Weighting of Each Question

- Number of questions
- Structure of questions
  - Sequential
  - Independent components
- Value of the scale used for each question
  » (0-10); (1-4); (yes-1 : no-0)
- Summary value calculation
  » Arithmetic
  » Multiplicative
  » Regression formula
Calculated Model of Quality of Life

SF-36
Factor analysis dimensions

- Bodily pain
- Mental health
- Physical-role
- Physical functioning
- Social functioning
- Health transition
- Emotional role
- General health
Does It Matter When We Ask the Single Global Quality of Life Question?
Single Item Question

• Single question gives a summary answer

• But single question is considered unreliable.
  – When asked “How are you?” patients respond differently depending on location
    » In the hallway answer is → “Fine”
    » In the exam room → get a long list of complaints
Does the Underlying Construct Affect the Answer to Questions?

German Potato Study – Patients were asked two sets of questions

• First set
  – Are potatoes a german food? 40% said yes

• Second set
  – Is rice a Chinese food?
  – Is pasta an Italian food?
  – Are potatoes a german food? 60% said yes
Study of the Order for the Global Rating of Quality of Life

First question of the SF-36 is Global Health

1. In general, would you say your health is:
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor

Then administer the rest of the SF-36

Then ask “Considering all these factors:”

37. In general, would you say your health is:
   - Excellent
   - Very good
   - Good
   - Fair
   - Poor
Pre-Post Comparison of SF-36 General Health Question

- Conducted as part of a clinical trial of patients with osteoarthritis of the knee
- SF-36 administered as first questionnaire followed by the identical first question again.
- 63 subjects were evaluated
  - Fifty-one (81%) subjects reported the same level of GH before and after the SF-36 evaluation
  - 5 subjects (8%) improved by 1 category
  - 6 subjects (9%) worsened by 1 category, and
  - 1 subject (2%) worsened by 2 levels
- Spearman rank pre - post r=0.80, p<0.0001
### Spearman Rank Correlations (p-value vs no correlation)

<table>
<thead>
<tr>
<th>SF36 Subscale</th>
<th>Pre - SF36 Global</th>
<th>Post - SF36 Global</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical Health</td>
<td>0.46 (&lt;0.0001)</td>
<td>0.40 (0.001)</td>
</tr>
<tr>
<td>Role Physical</td>
<td>0.27 (0.033)</td>
<td>0.41 (0.0009)</td>
</tr>
<tr>
<td>Bodily Pain</td>
<td>0.38 (0.002)</td>
<td>0.37 (0.003)</td>
</tr>
<tr>
<td>General Health</td>
<td>0.66 (&lt;0.0001)</td>
<td>0.76 (&lt;0.0001)</td>
</tr>
<tr>
<td>Vitality</td>
<td>0.40 (0.001)</td>
<td>0.50 (&lt;0.0001)</td>
</tr>
<tr>
<td>Social Function</td>
<td>0.43 (0.0004)</td>
<td>0.52 (&lt;0.0001)</td>
</tr>
<tr>
<td>Role Emotional</td>
<td>0.22 (0.08)</td>
<td>0.25 (0.05)</td>
</tr>
<tr>
<td>Mental Health</td>
<td>0.35 (0.006)</td>
<td>0.50 (&lt;0.0001)</td>
</tr>
</tbody>
</table>

In 5 out of seven subscales there was a closer correlation with the question asked after completing the SF-36.
Why Ask Questions (Rather than Read Statements)

The psychometric properties of a question are different than reading a statement.

- Answering a question involves thinking about the response.
- The answers to those questions provide data that can be used to better understand the global response.
- However, need to avoid patient burn out (i.e. too many questions).
Global Rating of Quality of Life (Possible Alternative)

- **Start with multiple questions:**
  - Covering all domains to be considered
  - To get subject to think about all areas
  - For use in etiologic and predictive modeling
  - For face and context validity

- **Followed by a global question:**
  - "Considering all of the above…"
  - Allows the subject to integrate the factors
  - Possible use as the primary outcome?
Survey of Course Participants

• How do you feel about this lecture?

0 1 2 3 4 5 6 7 8 9 10

Complete Waste of Time
Best Use of My Time
Ask the Question a Different Way

• How do you feel about being in a nice place?)
  0_1_2_3_4_5_6_7_8_9_10
  Complete Best Use
  Waste of Time of My Time

• How do you feel about being indoors on this warm afternoon

• How do you feel about your significant other doing fun things without you

• How do you feel about spending (wasting?) your day at this meeting.
Based on All of the Above

• Now, how do you feel about this lecture?

0 1 2 3 4 5 6 7 8 9 10

Complete
Waste of Time

Best Use
of My Time
Global Impression of Change

- **Types**
  - **Change** \((-3 \text{ to } 0 \text{ to } +3)\)
    - Much worse to stable to much better
  - **Relief** \((0 - 100\% \text{ relief})\)
  - **Medication Performance**
    - (poor, fair, good, very good, excellent)

- **Also need to pick a time frame**
Global Impression of Change

Since the start of the study
or - over the last ______ (month, week, day)
or - since your last visit
how would you rate your ______
(pain, function, quality of life)

Much worse  Worse  A little worse  No change  A little better  Better  Much better
Global Impression of Change

Since the start of the study
or - over the last ______ (month, week, day)
or - since your last visit

my overall status is:

- Very Much worse
- Much worse
- Worse
- A little Worse
- No Change
- A little Better
- Better
- Much better
- Very much better
As a Primary Outcome of a Trial

- Clinical Question: Is the benefit (taking into account the possible risk) of the treatment going to make it worthwhile to use in patients?

- Use questionnaire total score or change:
  - Using scoring or modeling

- Or use global question
  - Rating scale or change scale
Advantages of Global Approach

- Can combine multiple important outcomes
- Allows patients to integrate factors
- Answers the important clinical question
Advantages of Using Context Multi-question Then Global

- Clarifies the factors that are to be considered
- Ensures patients have at least considered all of the factors into their integrated response
- Provides data to help explain the response
- May allow more consistent comparison across studies
- May allow us to compare across cultures
Recommendations PGIC (Patient global impression of change)

• Use balanced 7 or 9 point scale

• Overall rating to ensure patient is:
  – Better (how much?)
  – Not worse (balance of effect/side-effects and no unmeasured side-effects)

• Consider additional global impression of change and global rating questions
  – For pain? For function? For quality of life?

• Consider use as a primary outcome?
The End