Subjective Wellbeing Assessment for Survey Research

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Disclosures: AAS is a Senior Scientist with the Gallup Organization and a Senior Consultant with ERT, inc.
Overview

- What is Subjective Wellbeing?
- Why measure it and recent history
- Conceptual Overview
- Eudemonic Measures
- Life Satisfaction/Evaluative WB studies
  - Methods
  - Representative studies
- Hedonic WB studies
  - Why measure daily affect and time use?
  - Methods to assess a single day
  - Representative studies
- Comments
What is Subjective Wellbeing?

- Three aspects
  - Eudemonic
  - Life satisfaction or evaluative
  - Hedonic or affective (subdivisions: + and - )

- “Happiness” is ambiguous
  - Either life satisfaction or hedonic WB
  - Makes for confusion in the literature
Why measure it and recent history

- Is GDP an adequate method for characterizing the WB of a country or subgroups of people within countries?
- What is the role of government in monitoring the health and WB of their constituents?
Why measure it and recent history


"Research has shown that it is possible to collect meaningful and reliable data on subjective as well as objective well-being. Subjective well-being encompasses different aspects (cognitive evaluations of one's life, happiness, satisfaction, positive emotions such as joy and pride, and negative emotions such as pain and worry): each of them should be measured separately to derive a more comprehensive appreciation of people’s lives....[subjective well-being] should be included in larger-scale surveys undertaken by official statistical offices."
Why measure it and recent history

- Rise in the Positive Psychology Movement

- Kingdom of Butan’s Wellbeing program
  - Gross National Happiness: environmental emphasis
  - UN Resolution to consider WB

- Gallup Organization’s polls
  - World Poll
  - Daily Poll
  - Gallup-Healthways Wellbeing Index
Why measure it and recent history

- UK’s Office of National Statistics (ONS) recent surveys
  - December 2011; 4,000 Adults
  - Annual Population Survey: 80,000 Adults

- OECD upcoming extensive report on measuring SWB

- NIA/UK: National Academy of Science panel: “Panel of measuring Subjective Wellbeing in a policy-relevant, national accounting framework, Phase 1”
Conceptual Overview
Conceptual Position Regarding Measurement

- Measures of Subjective Wellbeing are *Self-reports*
- As such, numerous factors about understanding questions, processing information, capacity of memory, and reporting biases are in play
- Fields of cognitive science, autobiographical memory, and social psychology contribute to understanding self-reported information
General issues for Self-reports

- Self-reporting Task
- Memory limitations
- Cognitive heuristics
- Summary processes
Conceptual Position Regarding Measurement: Evaluative

- Cognitive Heuristics impact recollection
  - Rules of Thumb, but out of awareness
  - Peak-end
  - Current levels
    - As a proxy for recall period
    - As altering accessibility to past memories
  - Variability
  - Duration neglect

- These issues are recognized by the survey research world and by regulatory agencies
Conceptual Position Regarding Measurement: Hedonic

- Procedures to avoid bias due to recall
  - Limit recall period
  - Reconstruction of recall period
  - More precise questions about sought after information
  - Limit queries to information that can be recalled
    - e.g., salient events may be possible to recall
    - e.g., difficulty with highly fluctuating states
Conceptual Position Regarding Measurement

- Emotions are stored in Experiential Memory
  - Stored-lived, fleeting
- Memories of emotions are stored in Episodic Memory
- Beliefs are stored in Semantic Memory

<table>
<thead>
<tr>
<th>Global Well-being</th>
<th>Hedonic Well-Being</th>
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<tbody>
<tr>
<td>Semantic Memory</td>
<td>Experiential Memory</td>
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</table>

- As Recall Period increases, a shift from Experiential/Episodic to Semantic
  - Robinson & Clore’s work on reaction time
Eudemonic
Ryff’s Model

- Purpose in life
- Positive relationships
- Personal growth
- Self-acceptance
- Autonomy
- Environmental mastery

Measure: *The Scales of Psychological Well-being* (Ryff, 1989)
Life Satisfaction
Measurement of Life Satisfaction

- Single Life Satisfaction and Happiness Questions

**World Values Survey**

Life satisfaction: All things considered, how satisfied are you with your life as a whole these days? Please use this card to help with your answer.

1 ‘Dissatisfied’ 2 3 4 5 6 7 8 9 10 ‘Satisfied’

Financial satisfaction: How satisfied are you with the financial situation of your household? If ‘1’ means you are completely dissatisfied on this scale and ‘10’ means you are completely satisfied, where would you put your satisfaction with your household’s financial situation?

1 ‘Dissatisfied’ 2 3 4 5 6 7 8 9 10 ‘Satisfied’

Happiness: Taking all things together, would you say you are:

1 ‘Very happy’ 2 ‘Quite happy’ 3 ‘Not very happy’ 4 ‘Not at all happy’
Measurement of Life Satisfaction

- Satisfaction with Life Scale

<table>
<thead>
<tr>
<th>SWLS Items and Factor Loadings</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Factor Loadings</td>
</tr>
<tr>
<td>1. In most ways my life is close to my ideal.</td>
<td>.84</td>
</tr>
<tr>
<td>2. The conditions of my life are excellent.</td>
<td>.77</td>
</tr>
<tr>
<td>3. I am satisfied with my life</td>
<td>.83</td>
</tr>
<tr>
<td>4. So far I have gotten the important things I want in life.</td>
<td>.72</td>
</tr>
<tr>
<td>5. If I could live my life over, I would change almost nothing.</td>
<td>.61</td>
</tr>
</tbody>
</table>

Note: n = 176. SWLS = Satisfaction With Life Scale.

Instructions for administering the scale are: Below are five statements with which you may agree or disagree. Using the 1-7 scale below, indicate your agreement with each item by placing the appropriate number on the line preceding that item. Please be open and honest in your responding. The 7-point scale is: 1 = strongly disagree, 2 = disagree, 3 = slightly disagree, 4 = neither agree nor disagree, 5 = slightly agree, 6 = agree, 7 = strongly agree.
Measurement of Life Satisfaction

- Cantril’s Self-Anchoring Ladder

Assume that this ladder is a way of picturing your life. The top of the ladder represents the best possible life for you. The bottom rung of the ladder represents the worst possible life for you.

Indicate where on the ladder you feel you personally stand right now by marking the circle.
Fig. 2. Life satisfaction around marriage. Note: the graph represents the pattern of well-being after taking respondents’ sex, age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship into account. Data source: GSOEP.
Representative Findings

Fig. 1. Do happy people get married? Note: the graph represents the pattern of well-being after taking respondents’ sex, age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship into account. Data source: GSOEP.

Hedonic Wellbeing
Methodologies for Assessing Hedonic W-B: Real-time Data Capture

- Develop real-time daily sampling scheme
  - Random – with preprogrammed signals
  - Stratified random
  - Event-driven

- Data collection mode
  - Paper-and-pencil
  - Electronic diaries
  - Questions about experience just before signal

- Results
  - Issues with paper-and-pencil
  - Compliance at least 90% with electronic diaries
  - Pharmaceutical industry vendors

Methodologies for Assessing Hedonic W-B Real-time Data Capture

- **PROs**
  - No recall bias – tapping experiences
  - Mood can be associated with environmental qualities
  - Can capture diurnal rhythms

- **CONs**
  - Point estimates
  - Sampling framework
  - Can miss important events
  - Burdensome/expensive

- **Modifications**
  - *Near-real time*: Small retrospective periods (minutes/hours) to increase coverage of day
Methodologies for Assessing Hedonic Well-being: End-of-Day Diaries

- EOD diaries are the oldest method for capturing near real-time data

- Require recall for up to 24 hours
  - Little evidence that major bias due to most heuristics

- Mode of Administration (applies to following methods)
  - Paper-and-pencil
    - “Parking Lot” compliance
    - Forward-filling
  - Electronic diary
    - Time-date stamp
  - Interactive Voice Recording (IVR)
    - Few visual cues
  - Internet
    - Household availability of internet access
Methods for Assessing Hedonic Well-being: End-of-Day Diaries

Assessment Method

- Typically mood adjectives from Circumplex
  - E.g., Nowlis Mood Adjective Checklist
  - Positive and Negative Affect Schedule (PANAS)
- Format #1: Did the adjective:
  - 3= Definitely applied to today’s mood
  - 2= Slightly applied to today’s mood
  - 1= Did not apply to today’s mood
- Format #2: “To what extent did you experience this affect during the day?”
  - 0=None  2=Slightly  4=Moderately  6=Extremely
Methods for Assessing Hedonic Well-being: End-of-Day Diaries

- **PROs**
  - Rapid assessment of day’s mood
  - Allows for extended length studies
  - Low participant burden
  - Relatively inexpensive

- **CONs**
  - Possible recall bias over day
  - Poor resolution of day
    - Diurnal rhythms
    - False PA—NA association
  - Compliance issues with some Modes-of-Administration
Methods for Assessing Hedonic Well-being: End-of-Day Diaries

- National Study of Daily Experience
  - Part of MIDUS survey (Almeida)
  - 1,031 respondents; 8 consecutive brief telephone interviews
  - Daily NA: Worthless; Hopeless; Nervous; Restless; Fidgety
  - Daily PA: Cheerful; In Good Spirits; Extremely Happy; Calm and Peaceful; Satisfied; Full of Life
Methods for Assessing Hedonic Well-being: End-of-Day Diaries

- **PROs**
  - Very brief assessment
  - Low participant burden
  - Low cost

- **CONs**
  - Somewhat longer recall period
  - Current affect may impact recall
  - Low resolution regarding the day
  - Must be completed at end of day
    - Difficult for many survey protocols
Methods for Assessing Hedonic Well-being: Recall of Yesterday

- **Ask person to report affect about yesterday**
  - Advantage: Can be administered anytime during day
  - Advantage: Covers the entire day
  - Disadvantage: Longer recall period

- **Gallup Organization Daily Survey**
  - Since 2 January 2008, 1,000 RDD interviews per day
  - Several questions about Yesterday
  - Did you experience the following feelings during A LOT OF THE DAY yesterday? How about __________? NO/YES
    - Enjoyment, Sadness, Stressed, Worried
  - Data presented is of 337,000 interviews conducted in 2008
Methods for Assessing Hedonic Well-being: Recall of Yesterday

Methods for Assessing Hedonic Well-being: Recall of Yesterday
Methods for Assessing Hedonic Well-being: Recall of Yesterday

- Gallup-Healthways Well-being Index

Methods for Assessing Hedonic Well-being: Recall of Yesterday

- **PROs**
  - Very brief assessment
  - Low participant burden
  - Low cost

- **CONs**
  - Longer recall period
  - Current affect may impact recall
  - Low resolution regarding the day
Why measure affect and time use?

- **Possibilities**
  - To link WB to activities
  - To explore determinants of affect/time use
  - To measure change in affect/time use over time

- **Considerations:**
  - To measure *actual* affect and time use, not peoples’ beliefs about these things
Why measure affect and time use?

- Focus today on a single-day measure

- Rationale
  - Fairly accurate measurement of a daily emotions and activities may be possible
  - Longer periods involve considerable recall and bias is likely
  - Perspective will be of “yesterday” for practical reasons

- Possible concerns
  - Is it meaningful to capture data from a single day, even if accurately? Will return to this
Methods for Assessing Hedonic Well-being:
Day Reconstruction Method (DRM)

- Beyond EOD and Yesterday diaries by incorporating reconstruction of recall period
- Intention was to develop a method that could reproduce ESM/EMA from the perspective of yesterday
- Rationale: Reconstruction of day via time-use
  - Packet 1 contained standard life satisfaction questions and some demographics.
  - Packet 2 asked respondents to segment the preceding day (a work day) into episodes, like scenes in a movie (mean = 15 episodes); didn’t collect diaries from them at the end.
  - Packet 3 asked detailed questions about the setting of each episode and about their feelings
Methods for Assessing Hedonic Well-being:
Day Reconstruction Method (DRM)

- Respondents were given 3 envelopes, which were opened sequentially. Each envelope contained a questionnaire. The questionnaires were labeled “Packets” 1-3
  - **Packet 1** contained standard life satisfaction questions and some demographics.
  - **Packet 2** asked respondents to segment the preceding day (a work day) into episodes, like scenes in a movie (mean = 15 episodes); didn’t collect diaries from them at the end.
  - **Packet 3** asked detailed questions about the setting of each episode and about their feelings (shown next)

Methods for Assessing Hedonic Well-being:
Day Reconstruction Method (DRM)

What were you doing? (check all that apply)

___ commuting
___ shopping
___ doing housework
___ eating
___ socializing
___ nap/resting
___ relaxing
___ intimate relations
___ other (please specify____________________)

___ working
___ preparing food
___ taking care of your children
___ pray/worship/meditate
___ watching TV
___ computer/internet/email
___ on the phone
___ exercising
Methods for Assessing Hedonic Well-being:
Day Reconstruction Method (DRM)

How did you **feel** during this episode?

*Please rate each feeling on the scale given. A rating of 0 means that you did not experience that feeling at all. A rating of 6 means that this feeling was a very important part of the experience. Please circle the number between 0 and 6 that best describes how you felt.*

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impatient for it to end</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Happy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Frustrated/annoyed</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Depressed/blue</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Hassled/pushed around</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Angry/hostile</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Worried/anxious</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Enjoying myself</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Criticized/put down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Tired</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Methods for Assessing Hedonic Well-being: Day Reconstruction Method (DRM)

- Representative findings
- Does DRM faithfully reproduce real-time data?
Methods for Assessing Hedonic Well-being: Day Reconstruction Method (DRM)

Figure 3. Diurnal cycles of Enjoy, Happy, Warm, Worried, and Tired. Solid lines represent levels for those 30 and under and dashed lines for those 50 and older.
Methods for Assessing Hedonic Well-being: Day Reconstruction Method (DRM)
Methods for Assessing Hedonic Well-being: Day Reconstruction Method

- The case of Income and Happiness
  - Long history of income being associated with happiness
  - DRM study included Life Satisfaction and Happiness (affect)

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Life satisfaction</th>
<th>Amount of day in good mood (%)</th>
<th>Duration-weighted &quot;happy&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household income</td>
<td>0.32***</td>
<td>0.20***</td>
<td>0.06</td>
</tr>
</tbody>
</table>

- Additional real-time (EMA) results from NYC Workplace Study showed no association between Happy mood and Income
Methods for Assessing Hedonic Well-being: Day Reconstruction Method (DRM)

- Does DRM method faithfully reproduce EMA?
  - Small scale study (n=168) comparing PATS with EMA
  - Three days of 6 EMA random reports

![Bar chart comparing EMA and PATS-2 ratings for different emotions over time.]
Methods for Assessing Hedonic Well-being: Day Reconstruction Method (DRM)

- Pain in the United States (PATS)

Figure: Pain rating by age and sex
Separate kernel regressions (bandwidth 0.4) were used to smooth the data by age for men and women. The kernel regression controlled for income, ethnic origin, and education.

Methods for Assessing Hedonic Well-being: Princeton Affect & Time Use Survey (PATS)

- Pain in the United States

<table>
<thead>
<tr>
<th>Activity</th>
<th>Proportion of intervals with pain rating &gt;0</th>
<th>Proportion of intervals with pain rating &gt;3</th>
<th>Average pain rating (0–6 scale)</th>
<th>Average happiness rating (0–6)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>Women</td>
<td>p value*</td>
<td>Men</td>
</tr>
<tr>
<td>Personal care</td>
<td>42.5%</td>
<td>32.2%</td>
<td>0.264</td>
<td>18.7%</td>
</tr>
<tr>
<td>Housework</td>
<td>35.2%</td>
<td>33.8%</td>
<td>0.837</td>
<td>15.1%</td>
</tr>
<tr>
<td>Food preparation and clean-up</td>
<td>34.5%</td>
<td>31.9%</td>
<td>0.664</td>
<td>12.7%</td>
</tr>
<tr>
<td>Lawn and garden</td>
<td>47.8%</td>
<td>41.2%</td>
<td>0.343</td>
<td>18.2%</td>
</tr>
<tr>
<td>Household management</td>
<td>29.4%</td>
<td>24.4%</td>
<td>0.530</td>
<td>11.6%</td>
</tr>
<tr>
<td>Caring for children</td>
<td>24.2%</td>
<td>16.7%</td>
<td>0.197</td>
<td>5.8%</td>
</tr>
</tbody>
</table>

Time Use: American Time Use Study (ATUS)

- Perhaps the standard in the US for time use
  - Data collection is via CATI
  - Activity blocks are systematically captured through the day
  - Coded with three-tier system, but only primary code is analyzed
    - Users Guide suggests this may underestimate some activities
  - Interview takes between 15-20 minutes
ATUS: Main Codes

- 1. Sleeping
- 2. Grooming (self)
- 3. Watching TV
- 4. Working at main job
- 5. Working at other job
- 6. Preparing meals or snacks
- 7. Eating and drinking
- 8. Cleaning kitchen
- 9. Laundry
- 10. Grocery shopping
- 11. Attending religious service
- 12. Paying household bills
- 13. Caring for animals and pets
- 14. Taking care of someone (including child/aged family)
- 15. Commuting or travelling
- 30. Don't know/Can't remember
- 31. Refusal/ None of your business
The New Old Age
Caring and Coping

New Numbers on Elder Care
By PAULA SPAN

July 5, 2012, 12:33 PM | 3 Comments

Percent of eldercare providers, civilian noninstitutional population, by relationship to care recipient, ages 15 and older, 2011 annual averages

Non-eldercare providers 83.7%
Eldercare providers 16.3%

4.3% Spouse or unmarried partner
19.1% Grandparent
20.7% Another related person
25.4% Someone else
42.4% Parent

Note: Estimates for relationship categories sum to more than 100 percent because some eldercare providers cared for more than one person

Source: U.S. Bureau of Labor Statistics
Methods for Assessing Hedonic Well-being: Day Reconstruction Method (DRM)

- **PROs**
  - Sampling of episodes is possible
  - Associated with time-usage
  - Multiple modes of administration

- **CONs**
  - Duration of assessment
    - Though PATS is shorter
  - Technologically sophisticated
  - Skilled interviewers necessary
  - Costly
Comment

Is there enough “signal” in a daily assessment?

- Simulations of group Ns necessary for detecting effects
  - Gallup-Healthways survey results shown were based on >300,000 interviews
  - To detect some of those effects, what Ns are necessary?
    - Extrapolated from age-WB effects with an ES=.11 (small) and found that sample of 2,800 would yield a power of .80
    - Bootstrapping procedure replicated result

Stone, A.A. A rationale for including a brief assessment of Hedonic Well-being in large-scale surveys. Forum for Health Economics & Policy, 2011, 14, article 7.
Recent developments

- “Hybrid” methods for Time Use and Hedonic WB
  - Capture a small number of activities with associated affect
  - Quick, but limited and activity selection likely project-specific
  - J. Smith’s work with HRS at ISR

- Email and text msg sampling (like EMA)
  - Recent D. Gilbert study on daydreaming

- Compiling public Twitters and text analyzing
Summary

- The field of Subjective Wellbeing is rapidly growing and has considerable potential.
- One of the behavioral fields that could influence policy decisions.
- There are several ways to think about SWB and they often yield different answers to questions.
- There continue to be concerns about the measurement and meaning of SWB measures that hamper their adoption.
- There are practical concerns that limit use.