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A Conceptual Model for Using AI to Advance Ethical Health Research

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Resources

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Checklist: Data Quality

- ✓ Are all necessary data collected?
- ✓ Are the data sufficient to comprehensively address research questions?
- ✓ Are there any missing data patterns that might bias the results?
- ✓ Are there any cultural factors that might influence the completeness of the data?
- ✓ Are there any inconsistencies that might indicate errors or biases?
- ✓ Are the data current and collected within an appropriate time frame for the intended use?
- ✓ Do the data include sufficient details or contextual information to support meaningful interpretation?
- ✓ Are the data free from manipulation or errors introduced during data entry?

Checklist: Data Relevance

- ✓ Has the measure been re-evaluated in light of new knowledge?
- ✓ Are there any new research findings or theoretical developments that might impact the validity or interpretation of the measure?
- ✓ Have the definitions of the concepts and items in the measure remained consistent over time?
- ✓ Are there any documented changes in terminology or interpretation?
- ✓ Have there been any significant societal, cultural, or technological changes that might affect the relevance of the measure?

Checklist: Data Interoperability and Clarity

- ✓ Are the concepts and items in the measure clearly defined and unambiguous?
- ✓ Is there a shared understanding of the meaning of the data across different systems and users?
- ✓ Are there any potential semantic mismatches that could arise from cultural or linguistic differences?
- ✓ Does the measure use standardized terminology and coding schemes?
- ✓ Is it compatible with existing data standards and ontologies?
- ✓ Can the data be easily exchanged and integrated with other systems?

Checklist: Cultural Appropriateness of Measures

- ✓ Does the measure accurately reflect the specific cultural context in which it will be used?
- ✓ Are the concepts and items relevant and meaningful to individuals from the target culture?
- ✓ Have the translations been validated for accuracy and cultural sensitivity?
- ✓ Is the language used clear, concise, and easily understood by the target population?
- ✓ Does it account for potential cultural differences in response styles (e.g., social desirability bias)?

Checklist: Measurement Validity

- ✓ Do the items in the measure adequately represent the construct being measured?
- ✓ Does the measure correlate with other established measures of the same construct?
- ✓ Is there evidence that the measure is culturally relevant and valid for the target population?
- ✓ Is there evidence to support the internal structure of the measure?

Checklist: Bias in Measurement Validation

- ✓ Was the sample used in the initial validation study representative of the intended population?
- ✓ Were there any biases in the sampling process that might have affected the results?
- ✓ Were any subgroups excluded or underrepresented in the sample?
- ✓ Was the sample size adequate to ensure generalizability of the findings?
- ✓ Were the demographic characteristics of the validation sample (e.g., age, gender, ethnicity, socioeconomic status) reported and compared to the target population?
- ✓ Were any analyses conducted to examine the potential impact of demographic factors on the measure's performance?

Open-source Tools for Data Cleaning

- **DataCleaner** https://datacleaner.github.io/
- **OpenRefine** https://openrefine.org/
- **JASP** https://jasp-stats.org/
- **RawGraphs** https://www.rawgraphs.io/
- **Python** (Pandas, matplotlib, seaborn, plotly)
- **R** (ggplot2, plotly)

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Thank you

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Think-a-Thon poll

1. **Rate how useful this session was:**

- ☐ Very useful
- ☐ Useful
- ☐ Somewhat useful
- ☐ Not at all useful

Think-a-Thon poll

2. Rate the pace of the instruction for yourself:

- ☐ Too fast
- ☐ Adequate for me
- ☐ Too slow

Think-a-Thon poll

3. **How likely will you participate in the next Think-a-Thon?**

- ☐ Very interested, will definitely attend
- ☐ Interested, likely will attend
- ☐ Interested, but not available
- ☐ Not interested in attending any others

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Thank you

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Next Think-a-Thons:

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