

Development, Reliability and Validity of the Patient Education Materials Assessment Tool (PEMAT): An Instrument to Assess the Understandability and Actionability of Print and Audiovisual Patient Education Materials

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Background

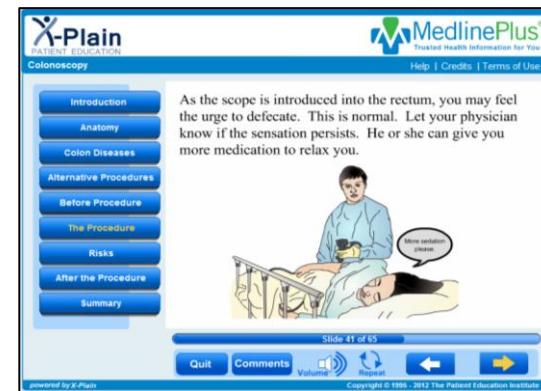


- Studies show patient education materials are often poorly understood by patients, especially those with limited health literacy.
- There are a myriad of patient education materials from which professionals (e.g., health librarians, clinicians) must choose.
- Some instruments are available to assess materials:
 - Many readability formulas (e.g., SMOG, Lexile)
 - Few instruments to assess comprehensibility (e.g., SAM, SAM-CAM, Health Literacy INDEX)

Background



- While several instruments are available, few assess print *and* audiovisual (A/V) materials:



- Actionable information has become recognized as an important aim of patient education materials.
 - No instrument assesses actionability.

Aim



- To develop a reliable and valid instrument to assess the understandability and actionability of patient education materials.
 - ***Understandability***: Patient education materials are understandable when consumers of diverse backgrounds and varying levels of health literacy can process and explain key messages.
 - ***Actionability***: Patient education materials are actionable when consumers of diverse backgrounds and varying levels of health literacy can identify what they can do based on the information presented.

Development Approach



- **Stage 1:** Review existing instruments and guides for assessing and developing materials to identify relevant constructs and construct an item pool.
- **Stage 2:** Assess the face and content validity using experts.
- **Stage 3:** Determine the reliability.
- **Stage 4:** Assess the construct validity by conducting comprehension testing with 47 consumers, and comparing understandability results to readability.

Stage 1: Review Existing Guides



- Identified and reviewed 22 relevant instruments and guides
- Identified 64 potential items, of which:
 - 28 were relevant to understandability
 - 8 items were relevant to actionability

Stage 2: Face/Content Validity



- Nine experts indicated whether a material's performance on each item would affect its understandability/actionability, discussed results, refined items, and identified gaps.
- We revalidated the items with four experts after developing new items, and refining existing ones.

Stage 3: Reliability



- We conducted four rounds of reliability testing with multiple untrained lay professional.
- Agreement improved across rounds.
- External consistency of the Final PEMAT:
 - High moderate agreement per Kappa ($K=0.57$)
 - Strong agreement per Gwet's AC1 ($AC1=0.74$)
- Internal consistency was strong:
 - Cronbach's $\alpha=0.71$
 - Average Item-Total Correlation= 0.62

Stage 4: Construct Validity



- We assessed the construct validity by testing with consumers (n=47).
- Found significant differences between actionable and poorly actionable materials (per the PEMAT) on both consumer testing metrics (76% vs. 63%, $p < 0.05$) and (8.9 vs. 7.7, $p < 0.05$).
- Did not find differences for understandability except for materials on inhaler on one metric.
- Similarly, found correlation between PEMAT scores and consumer testing results for actionability, but not for understandability.

Stage 4: Construct Validity



- Because the consumer testing results for understandability were limited, we compared results to readability assessments.
- There was a strong, negative correlation between one of the consumer testing metrics and average grade level.
- There was a strong negative correlation between the PEMAT understandability scores and the average grade level for all materials and audiovisual materials, and a very strong negative correlation for printable materials.

Summary



- Patient Education Materials Assessment Tool (PEMAT):
 - Was developed from existing evidence and repeatedly guided and validated by experts
 - Has strong internal consistency
 - Achieved moderate to substantial agreement, comparable to that of existing instruments
 - Used consumer testing to validate the tool; unlike others
 - Demonstrated to be valid from consumer testing (for actionability) and when compared to readability assessments (for understandability)

Summary



- Patient Education Materials Assessment Tool (PEMAT):
 - Does not assess comprehensiveness, clinical accuracy or readability; it can be used in conjunction with readability formulas
 - For both audiovisual and print/printable materials
 - For professionals who are making decisions about which materials to share with patients
 - Does not require formal training to use
 - Does not require information beyond the material itself (e.g., how it was developed)

Final PEMAT Instrument



- Provides an inventory of both desirable and undesirable characteristics of patient education materials.
- Consists of 26 items:
 - Understandability (19 items)
 - Actionability (7 items)
- Most items relevant to both print and A/V materials, but some items are applicable only to one type of material so there are 2 versions of the PEMAT for each type.
- Produces separate numeric scores for understandability and actionability.

Instrument Versions



- PEMAT User's Guide
 - 60-page User's Guide on how to use the PEMAT; includes examples and explanation for each item; example of visual aids; guidance on how to rate materials
- PEMAT for printable materials (PEMAT-P)
- PEMAT for audiovisual materials (PEMAT-A/V)
- PEMAT Auto-Calculable Form
- Will be available Fall 2013 at:
 - <http://www.ahrq.gov/professionals/prevention-chronic-care/improve/self-mgmt/pemat/>
 - To be notified once it is available, please email me

Questions?



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