Methods: Mind the Gap
Webinar Series

The Science of Partner Engagement in Research: Development and Validation of Evaluation Metrics

Presented by:
Melody S. Goodman, Ph.D.
New York University
School of Global Public Health

NIH National Institutes of Health
Office of Disease Prevention

The Science of Partner Engagement in Research: Development and Validation of Evaluation Metrics

MELODY S. GOODMAN, PHD

Interim Dean

PROFESSOR OF BIOSTATISTICS

DIRECTOR, CENTER FOR ANTI-RACISM, SOCIAL JUSTICE, & PUBLIC HEALTH

NYU SCHOOL OF GLOBAL PUBLIC HEALTH

TBM

COMMENTARY/POSITION PAPER

The science of stakeholder engagement in research: classification, implementation, and evaluation

Melody S. Goodman, PhD,[1] Vetta L. Sanders Thompson, PhD[2]

[1]College of Global Public Health, New York University, 715-719 Broadway, 10th Floor, New York, NY 10003, USA

[2]Brown School of Social Work, Washington University in St. Louis, St. Louis, MO, USA

Correspondence to: M Goodman
melody.goodman@nyu.edu

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Abstract

In this commentary, we discuss the science of stakeholder engagement in research. We propose a classification system with definitions to determine where projects lie on the stakeholder engagement continuum. We discuss the key elements of implementation and evaluation of stakeholder engagement in research posing key questions to consider when doing this work. We commend and critique the work of Hamilton et al. in their multilevel stakeholder engagement in a VA implementation trial of evidence-based quality improvement in women's health primary care. We also discuss the need for more work in this area to enhance the science of stakeholder engagement in research.

Keywords

Stakeholder-engaged research, Evaluation, Implementation science, Community engagement

With the uptake of implementation and translational

Implications

Research: Future research should evaluate stakeholder engagement in research to determine the association between the level (quality and quantity) of engagement and research outcomes.

Practice: Practitioners interested in engaging multilevel stakeholders in service evaluation and quality improvement should consider where the project lies on the stakeholder engagement continuum and create processes for shared decision-making that respect diverse perspectives and interests.

Policy: Meaningful stakeholder engagement with shared decision-making is a key component to evidence-based quality improvement initiatives.

Source: Goodman MS, Sanders Thompson VL. The science of stakeholder engagement in research: classification, implementation, and evaluation. Transl Behav Med. 2017 Sep;7(3):486-491

If you want to go fast, go alone.
If you want to go far, go together.

-African Proverb

All I really need to know….I learned in Kindergarten

Wisdom was not at the top of the graduate school mountain.	Share everything	Play fair
Don't hit people	Put things back where you found them	Clean up your own mess
Don't take things that aren't yours	Say you're sorry when you hurt somebody	And it is still true, no matter how old you are, when you go out in the world, it is best to hold hands and stick together

Adapted from a poem by Robert Fulghum

Why Measure Partner Engagement?

The extent to which stakeholders in research partnerships *feel engaged* has not received sufficient attention.

It is important to understand:

How engagement level in a partnership is developing.

To what extent engagement level is a predictor of outcomes in the larger study.

Systematic Review to Identify Measures

Started by thinking that such measures existed and that they had properties that were understood

Found that lots of people had measured something

But really did not know what they had measured

Field was “not very strong methodologically”

Citation: Clin Transl Sci (2017) 10, 314–336; doi:10.1111/cts.12474

REVIEW

Systematic Review of Quantitative Measures of Stakeholder Engagement

DJ Bowen[1,*], T Hyams[1], M Goodman[2], KM West[1], J Harris-Wai[3] and J-H Yu[4]

INTRODUCTION

Stakeholder engagement in research has received increasing attention in recent years.[1,2] The term "stakeholder engagement" refers to the process of meaningful involvement of those who are engaged in making decisions about programs.[3] Engaging members of the target population is often key to improving the relevance of the issues studied, the procedures used for study, and the interpretation of outcomes of research studies, health promotion activities, and disease prevention initiatives.[4–6] The utility of stakeholder engagement has been well established in the literature,[7–9] but there are few examples of measurement and evaluation of the degree to which stakeholders are engaged in these activities and the impact of engagement on positive outcomes. These types of evaluations have been limited in scope, and largely focused on qualitative approaches.[10–14] Qualitative methods

drafting or revision of the article, and (3) approval of the final version.

Search methods

We searched the peer-reviewed literature using two electronic bibliographic databases: PubMed (web-based) and the Web of Science (web-based). These database searches for all years until 2013 were conducted between July and September 2014. The 2014 search was conducted in January 2016.

Phase I: Searching the literature

With assistance from a reference librarian, we generated a master list of search terms to use with both databases. The following Medical Subject Headings (MeSH) terms were selected: *stakeholder engagement, community engagement,*

Source: Bowen DJD, Hyams T, Goodman M, West KMK, Harris-Wai J, Yu J-HJ-H. Systematic review of quantitative measures of stakeholder engagement. *Clin Transl Sci*. 2017;10(5).

Existing Measures Came in Two Camps

- One, in which investigators simply counted the attendance in various events and activities, and assumed engagement
  - *Example: Number of people who attended a board meeting or community meeting*
- Two, in which investigators measured some construct that was possibly related to engagement
  - *Example: Degree to which participants felt comfortable sharing their thoughts and opinions*
- Neither way has been validated or corroborated
- Mostly not examined in relation to outcomes or progress in project
- Not tracked over time

ARTICLE

EVALUATING COMMUNITY ENGAGEMENT IN RESEARCH: QUANTITATIVE MEASURE DEVELOPMENT

Melody S. Goodman
Washington University School of Medicine

Vetta L. Sanders Thompson
Brown School of Social Work, Washington University in St. Louis

Cassandra Arroyo Johnson, Renee Gennarelli, Bettina F. Drake, and Pravleen Bajwa
Washington University School of Medicine

Maranda Witherspoon
Missouri Foundation for Health

Deborah Bowen
University of Washington School of Medicine

Although the importance of community engagement in research has been previously established, there are few evidence-based approaches for measuring the level of community engagement in research projects. A quantitative community engagement measure was developed, aligned with 11 engagement principles (EPs) previously established in the literature. The measure has 96 Likert response items; 3–5 quality items and 3–5 quantity items measure each EP. Cronbach's alpha is used to examine the internal consistency of items that measure a single EP. Every EP item group had a Cronbach's alpha > .85, which indicates strong internal consistency for

Source: Goodman MS, Sanders Thompson VL, Arroyo Johnson C, et al. Evaluating community engagement in research: quantitative measure development. J Commun Psychol, 2017; 45(1): 17-32.

Community Engagement Measure

- New community engagement measure based on 11 engagement principles previously developed in the literature
- 3-5 items to assess each engagement principle
- Likert response options
- Quantity (how much)
  - *Never, rarely, sometimes, often, always*
- Quality (how well)
  - *Poor, fair, good, very good, excellent*

Phase I: Delphi Process

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DOI: 10.1002/jcop.22239

RESEARCH ARTICLE

COMMUNITY PSYCHOLOGY WILEY

Content validation of a quantitative stakeholder engagement measure

Melody S. Goodman[1] | Nicole Ackermann[2] | Deborah J. Bowen[3] | Vetta Thompson[4]

[1]Department of Biostatistics, College of Global Public Health, New York University, New York, New York

[2]Division of Public Health Sciences, Department of Surgery, Washington University School of Medicine, St. Louis, Missouri

[3]Bioethics and Humanities, University of Washington, Seattle, Washington

[4]Brown School of Social Work, Washington University in St. Louis, St. Louis, Missouri

Correspondence
Melody S. Goodman, Department of Biostatistics, College of Global Public Health, New York University, 715 Broadway10th Floor, New York, NY 1003.
Email: melody.goodman@nyu.edu

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Abstract

Aim: Using a stakeholder-engaged approach, this study conducted content validation and item reduction of a quantitative measure of research engagement.

Methods: A five-round modified Delphi process was used to reach consensus on items. Rounds 1–3 and 5 were conducted using web-based surveys. Round 4 consisted of a 2-day, in-person meeting. Delphi panelists received individualized reports outlining individual and aggregate group responses after rounds 1–3.

Results: Over the five-round process, items were added, dropped, modified, and moved from one engagement principle to another. The number of items was reduced from 48 to 32, with three to five items corresponding to eight engagement principles.

Conclusions: Research that develops standardized, reliable, and accurate measures to assess stakeholder engagement is essential to understanding the impact of engagement on

Source: Goodman MS, Ackermann N, Bowen, DJ, Thompson, V. Content validation of a quantitative stakeholder engagement measure. *J Community Psychol*. 2019 Nov;47(8):1937-1951.

Delphi Panelist

What is the Delphi Technique?

- The Delphi technique is a method for collecting and organizing informed opinions from a group of experts using an iterative process
  - *often used in survey instrument development*
- This approach is most appropriate to ensure that feedback is obtained from all stakeholders
  - *with all experts being treated equal and everyone's voices being heard*
- Delphi Technique afforded a stakeholder engaged measure development and validation (construct validity) process
- Web-based surveys used in rounds 1-3, 5; round 4 an in-person meeting with polling software
- The responses to surveys were analyzed by the investigator team and returned to the Delphi panelist for further consideration and response

More about the Delphi Process

- Subsequent rounds include items where consensus was not previously reached accompanied with anonymous feedback from previous iterations.
- Panelists are encouraged to reconsider their previous responses, and if appropriate, to change their previous response in light of replies and comments from other panelists.
- The eventual outcome of the Delphi process is to obtain consensus with ≥80% agreement among experts.
- Consensus was not forced; items for which consensus could not be reached were discussed at the in-person meeting.
- On day 2 of the in-person meeting, live voting reached over 80% agreement on all items.

Content Validation: Five Round Delphi Process

Round 1	Round 2	Round 3	Round 4	Round 5
Kick-off Webinar June 28, 2017 -Introduction to the project -Preparation for Round 1	Webinar 2 October 4, 2017 - Review of Round 1 results -Preparation for Round 2	Webinar 3 January 31, 2018 -Review of Round 2 results -Preparation for Round 3	In-person meeting April 26-27, 2018 - Review of round 3 results - Facilitated discussion N=10	No webinar
Survey 1 Demographics, EP titles, items, other measures July 2017 N=19	Survey 2 EP titles, definitions, items, case scenarios, levels of CER October - November 2017 N=18	Survey 3 EP titles, definitions, items, case scenarios, levels of CER February - March 2018 N=18	Survey of those unable to attend in person EP titles, definitions, items, case scenarios, levels of CER April 17-25, 2018 N=6	Final consensus survey EP titles, definitions, items, case scenarios, levels of CER July - August 2018 N=18
Individualized reports with round 1 results October 5, 2017	Individualized reports with round 2 results January 31st, 2018	Individualized reports with round 3 results April 9th, 2018	No individualized reports	No individualized reports

Source: Goodman, M. S., Ackermann, N., Bowen, D. J., Members of the Delphi Panel, & Thompson, V. L. S. (2020). Reaching Consensus on Principles of Stakeholder Engagement in Research. Progress in Community Health Partnerships: Research, Education, and Action, 14(1), 117–127. https://doi.org/10.1353/cpr.2020.0014

Delphi Round 1 Changes

Original Engagement Principles	Number of Items				
	Total	Not Changed	Dropped	Added	Modified
1. Focus on local relevance and social determinants of health	4	2	0	0	2
2. Acknowledge the community	4	0	4	-	-
3. Disseminate findings and knowledge gained to all partners	5	0	3	-	2[a]
4. Seek and use the input of community partners	5	0	1	1	4
5. Involve a cyclical and iterative process in pursuit of objectives	5	1	0	1	4
6. Foster co-learning, capacity building, and co-benefit for all partners	5	0	1	1	4
7. Build on strengths and resources within the community	4	0	0	1	4
8. Facilitate collaborative, equitable partnerships	5	0	2	3	3
9. Integrate and achieve a balance of all partners	4	1	1	-	2
10. Involve all partners in the dissemination process	4	0	1	2[a]	3
11. Plan for a long-term process and commitment	3	0	3	-	-
Newly Added EP – Build Trust[b]	-	-	-	4	-
Total	**48**	**4**	**16**	**13**	**28**

[a]Two items were moved to EP10 (new EP7 in the subsequent versions) and modified from the previous round.
[b]Four items were added to a new EP that did not exist in the original measure, “Build Trust.”

Delphi Round 2 Changes

Revised Engagement Principles	Number of Items			
	Total	Not Changed	Dropped	Modified
1. Focus on local relevance and social determinants of health.	4	3	0	1
2. (was #4) Seek and use the input of all partners.	5	0	0	5
3. (was #5) Involve a cyclical and iterative process in pursuit of objectives.	6	2	2	2
4. (was #6) Foster co-learning, capacity building, and co-benefit for all partners.	5	1	1	3
5. (was #7) Build on strengths and resources within the community/target population.	5	1	1	3
6. (was #8, 9) Facilitate collaborative, equitable partnerships.	9	4	2	3
7. (was #10) Involve all partners in the dissemination process.	5	0	1	4
8. (new) Build trust.	4	2	0	2
Total	**43**	**13**	**7**	**23**

Note. No items were added after Round 2.

Delphi Round 3 Changes

Final Engagement Principles	Number of Items				
	Total	Not Changed	Dropped	Added	Modified
1. Focus on community perspectives and determinants of health	4	3	0	0	1
2. Partner input is vital	5	1	1[a]	0	3
3. Partnership sustainability to meet goals and objectives	4	2	0	0	2
4. Foster co-learning, capacity building, and co-benefit for all partners	4	2	0	0	2
5. Build on strengths and resources within the community or patient population	4	3	1	0	0
6. Facilitate collaborative, equitable partnerships	7	4	1	0	2
7. Involve all partners in the dissemination process	4	1	2	1	1
8. Build and maintain trust in the partnership	4	4	0	1[a]	0
Total	**36**	**20**	**5**	**2**	**11**

[a]One item from EP2 moved to EP8

Delphi Rounds 4 & 5

Final Engagement Principles	Number of Items Changes Made During Round 4					Final (Round 5)
	Total	Not Changed	Dropped	Added	Modified	Total Items
1. Focus on community perspectives and determinants of health	4	3	0	0	1	4
2. Partner input is vital	4	1	1	1[b]	2	4
3. Partnership sustainability to meet goals and objectives	4	4	0	1	0	5
4. Foster co-learning, capacity building, and co-benefit for all partners	4	4	0	0	0	4
5. Build on strengths and resources within the community or patient population	3	1	0	0	2	3
6. Facilitate collaborative, equitable partnerships	6	3	2[b]	0	1	4
7. Involve all partners in the dissemination process	3	2	0	0	1	3
8. Build and maintain trust in the partnership	5	5	0	0	0	5
Total	**33**	**23**	**3**	**2**	**7**	**32**

[b]One item from EP6 moved to EP2

Reaching Consensus on Principles of Stakeholder Engagement in Research

Melody S. Goodman, PhD[1], Nicole Ackermann, MPH[2], Deborah J. Bowen, PhD[3], members of the Delphi panel[4], and Vetta Sanders Thompson, PhD[5]

(1) Department of Biostatistics, School of Global Public Health, New York University; (2) Division of Public Health Sciences, Department of Surgery, Washington University School of Medicine; (3) Bioethics and Humanities, University of Washington; (4) See Table 1 for affiliation of Delphi panel members; and (5) Brown School of Social Work, Washington University in St. Louis

Submitted 10 October 2018, revised 27 March 2019, accepted 28 August 2019

Abstract

Background: Stakeholder-engaged research is an umbrella term for the types of research that have community, patient, and/or stakeholder engagement, feedback, and bidirectional communication as approaches used in the research process. The level of stakeholder engagement across studies can vary greatly, from minimal engagement to fully collaborative partnerships.

Objectives: To present the process of reaching consensus among stakeholder and academic experts on the stakeholder engagement principles (EPs) and to identify definitions for each principle.

Methods: We convened 19 national experts, 18 of whom remained engaged in a five-round Delphi process. The Delphi panel consisted of a broad range of stakeholders (e.g., patients, caregivers, advocacy groups, clinicians, researchers). We used web-based surveys for most rounds (1–3 and 5) and an in-person meeting for round 4. Panelists evaluated EP titles and definitions with a goal of reaching consensus (>80% agreement). Panelists' comments guided modifications, with greater weight given to non-academic stakeholder input.

Conclusions: EP titles and definitions were modified over five Delphi rounds. The panel reached consensus on eight EPs (dropping four, modifying four, and adding one) and corresponding definitions. The Delphi process allowed for a stakeholder-engaged approach to methodological research. Stakeholder engagement in research is time consuming and requires greater effort but may yield a better, more relevant outcome than more traditional scientist-only processes. This stakeholder-engaged process of reaching consensus on EPs and definitions provides a key initial step for the content validation of a survey tool to examine the level of stakeholder engagement in research studies.

Keywords

Community health partnerships, evaluation studies, outcome and process assessment (health care), community-based participatory research, process issues

Source: Goodman, M. S., Ackermann, N., Bowen, D. J., Members of the Delphi Panel, & Thompson, V. L. S. (2020). Reaching Consensus on Principles of Stakeholder Engagement in Research. Progress in Community Health Partnerships: Research, Education, and Action, 14(1), 117–127. https://doi.org/10.1353/cpr.2020.0014

Research Engagement Survey Tool (REST)

- **8 Engagement Principles**

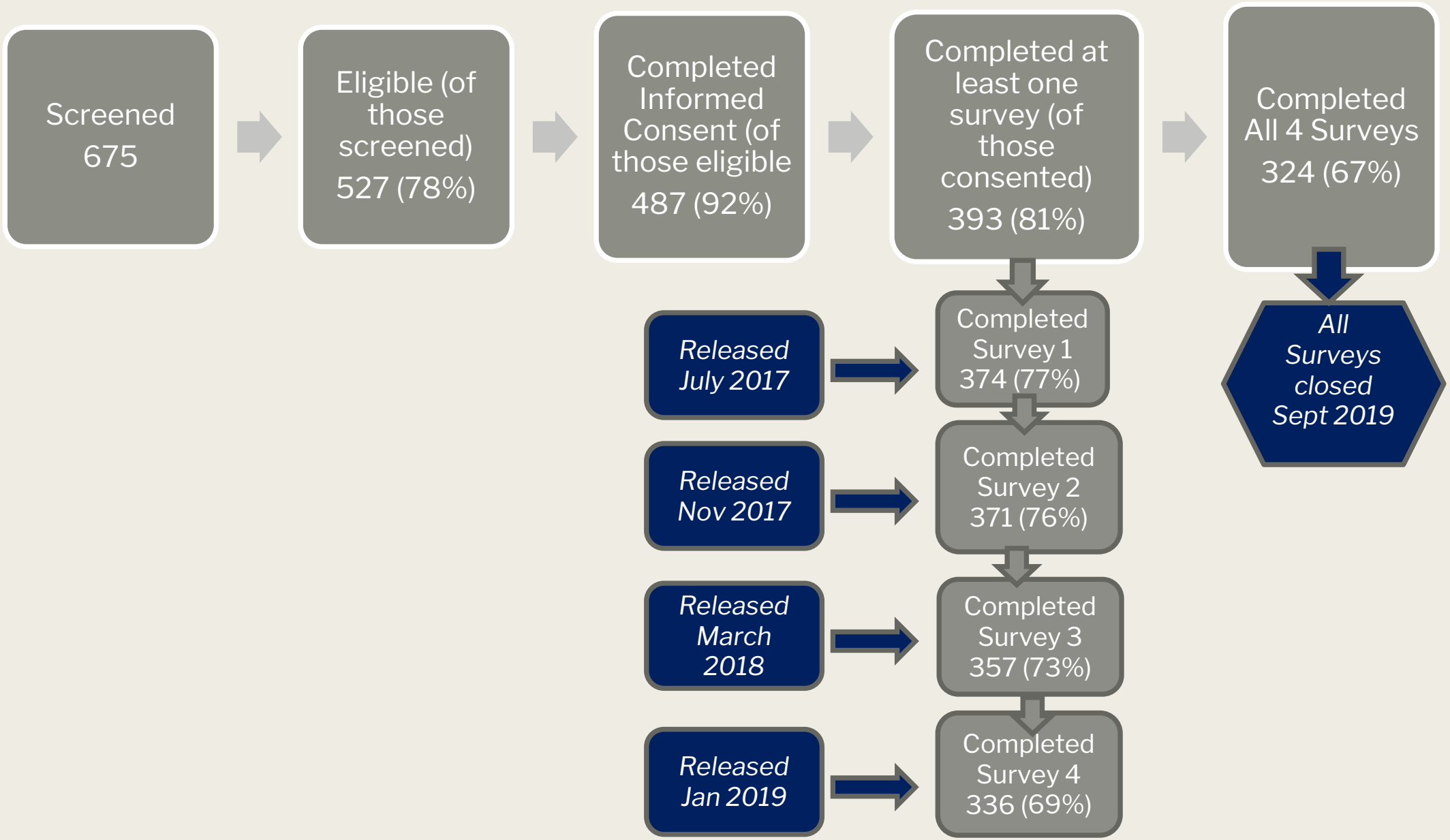
1) Focus on community perspectives and determinants of health
2) Partner input is vital
3) Partnership sustainability to meet goals and objectives
4) Foster co-learning, capacity building, and co-benefit for all partners
5) Build on strengths and resources within the community or patient population
6) Facilitate collaborative, equitable partnerships
7) Involve all partners in the dissemination process
8) Build and maintain trust in the partnership

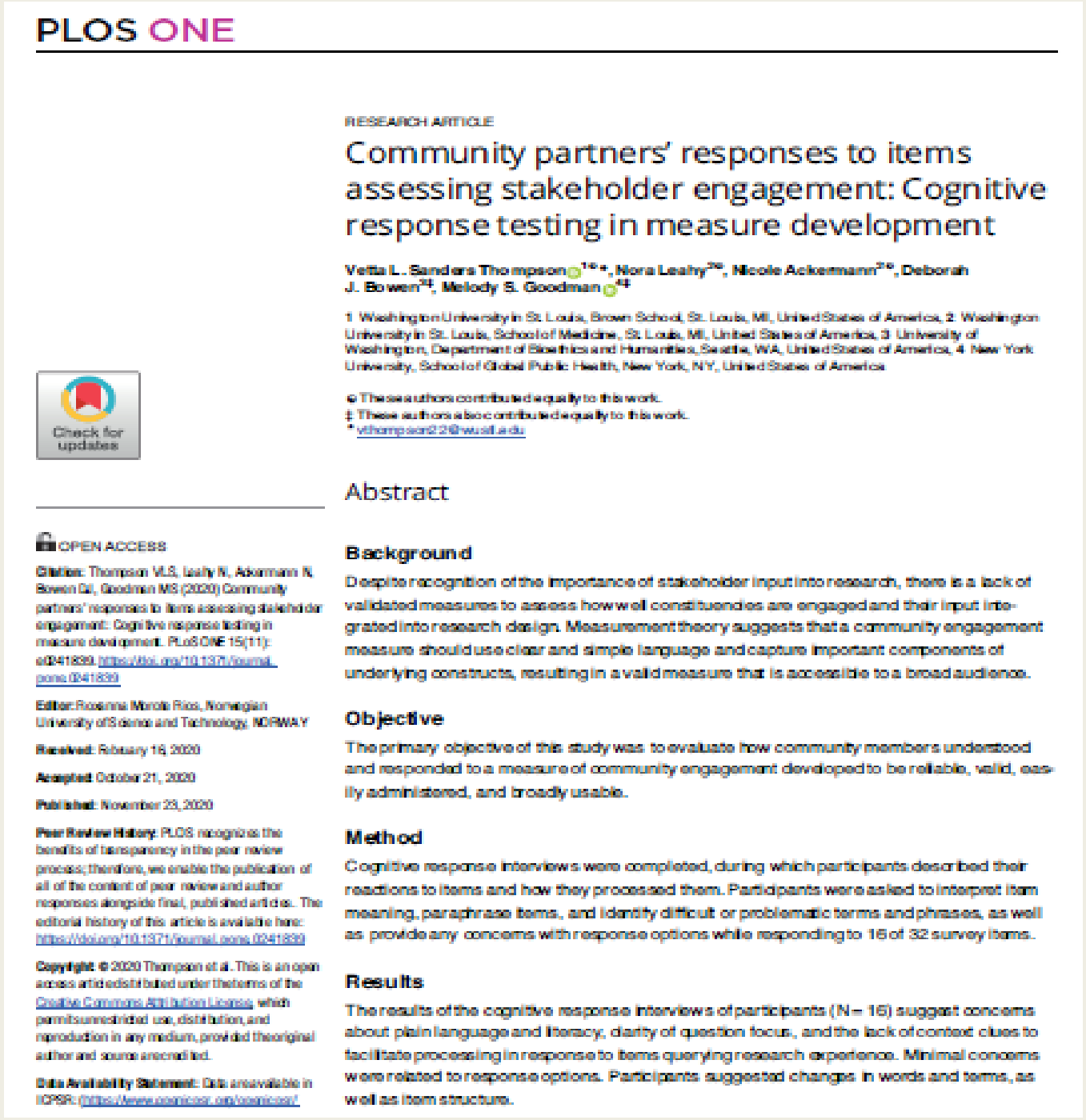
Sources: Goodman, M. S., Ackermann, N., Bowen, D. J., Members of the Delphi Panel, & Thompson, V. L. S. (2020). Reaching Consensus on Principles of Stakeholder Engagement in Research. Progress in Community Health Partnerships: Research, Education, and Action, 14(1), 117–127. https://doi.org/10.1353/cpr.2020.0014

Goodman, M. S., Ackermann, N., Bowen, D. J., & Thompson, V. (2019). Content validation of a quantitative stakeholder engagement measure. Journal of Community Psychology, 47(8), 1937–1951. https://doi.org/10.1002/jcop.22239

Phase II: Community Engaged Research Participant Surveys

Longitudinal Participant Surveys





PLOS ONE

RESEARCH ARTICLE

Community partners' responses to items assessing stakeholder engagement: Cognitive response testing in measure development

Vetta L. Sanders Thompson[1☯*], Nora Leahy[2☯], Nicole Ackermann[2☯], Deborah J. Bowen[3‡], Melody S. Goodman[4‡]

1 Washington University in St. Louis, Brown School, St. Louis, MI, United States of America, 2 Washington University in St. Louis, School of Medicine, St. Louis, MI, United States of America, 3 University of Washington, Department of Bioethics and Humanities, Seattle, WA, United States of America, 4 New York University, School of Global Public Health, New York, NY, United States of America

☯ These authors contributed equally to this work.
‡ These authors also contributed equally to this work.
* vthompson22@wustl.edu

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Data Availability Statement: Data are available in ICPSR: (https://www.icpsr.umich.edu/icpsrweb/)

Abstract

Background

Despite recognition of the importance of stakeholder input into research, there is a lack of validated measures to assess how well constituencies are engaged and their input integrated into research design. Measurement theory suggests that a community engagement measure should use clear and simple language and capture important components of underlying constructs, resulting in a valid measure that is accessible to a broad audience.

Objective

The primary objective of this study was to evaluate how community members understood and responded to a measure of community engagement developed to be reliable, valid, easily administered, and broadly usable.

Method

Cognitive response interviews were completed, during which participants described their reactions to items and how they processed them. Participants were asked to interpret item meaning, paraphrase items, and identify difficult or problematic terms and phrases, as well as provide any concerns with response options while responding to 16 of 32 survey items.

Results

The results of the cognitive response interviews of participants (N = 16) suggest concerns about plain language and literacy, clarity of question focus, and the lack of context clues to facilitate processing in response to items querying research experience. Minimal concerns were related to response options. Participants suggested changes in words and terms, as well as item structure.

Source: Thompson VLS, Leahy N, Ackermann N, Bowen DJ, Goodman MS (2020) Community partners' responses to items assessing stakeholder engagement: Cognitive response testing in measure development. PLOS ONE 15(11): e0241839. https://doi.org/10.1371/journal.pone.0241839

Cognitive Response Testing (n=16)

- Completed October 2018, between participant surveys 3 & 4
- Purpose
  - *To ensure readability & understandability of the measure*
- Preliminary results
  - *Literacy & interpretation concerns on certain words (ex: dissemination, governance, intellectual property, capacity)*
  - *Confusion on question stem*
  - *Complex questions*
  - *Add unsure [not applicable] option to responses*
- Measure was modified based on cognitive response testing results

Goodman *et al.*
Research Involvement and Engagement (2022) 8:26
https://doi.org/10.1186/s40900-022-00360-y

Research Involvement and Engagement

METHODOLOGY Open Access

Construct validation of the Research Engagement Survey Tool (REST)

Melody S. Goodman[1*], Nicole Ackermann[2], Zoé Haskell-Craig[1], Sherrill Jackson[3], Deborah J. Bowen[4] and Vetta L. Sanders Thompson[2]

Abstract

Background: The Research Engagement Survey Tool (REST) was developed to examine the level of partner (e.g., patients, caregivers, advocates, clinicians, community members) engagement in research studies. The REST is aligned with eight engagement principles based on the literature and consensus reached through a five round Delphi process. Each of the engagement principles has three-five corresponding items that are assessed on two Likert type scales quantity (how often: never, rarely, sometimes, often, always, not applicable) and quality (how well: poor, fair, good, very good, excellent, not applicable). We conducted a comprehensive validation of the REST. Despite the importance of partner engagement in research, currently no gold standard measure exists.

Methods: Multiple strategies were employed to validate the REST. Here, we examine the internal consistency of items for each of the eight engagement principles. In addition, we examine the convergent validity of the comprehensive (32-item) REST with other measures (e.g., medical mistrust, Community Engagement in Research Index, Partnership Self-Assessment Tool, Wilder collaboration inventory, Partnership Assessment In community-based Research). We propose two scoring approaches for the REST; one aligned with the engagement principles and the other aligned with levels of community engagement: (1) outreach and education, (2) consultation, (3) cooperation, (4) collaboration, and (5) partnership.

Results: The REST has strong internal consistency (Cronbach's alpha > 0.75) for each of the eight engagement principals measured on both scales (quality and quantity). The REST had negligible (e.g., medical mistrust, community engagement in research index), low (e.g., Partnership Assessment In community-based Research, Partnership Self-Assessment Tool- benefits scale), and moderate (e.g., Wilder collaboration inventory, Partnership Self-Assessment Tool- synergy scale) statistically significant correlations with other measures based on the Spearman rank correlation coefficient. These results suggest the REST is measuring something similar and correlated to the existing measures, but it captures a different construct (perceived research engagement).

Conclusions: The REST is a valid and reliable tool to assess research engagement of community health stakeholders in the research process. Valid tools to assess research engagement are necessary to examine the impact of engagement on the scientific process and scientific discovery and move the field of stakeholder engagement from best practices and lessons learned to evidence-based approaches based on empirical data.

Keywords: Research engagement, Stakeholder engagement, Validation, Survey measure, Construct validation, Convergent validity, Internal consistency

Source: Goodman, M.S., Ackermann, N., Haskell-Craig, Z. *et al.* Construct validation of the Research Engagement Survey Tool (REST). *Res Involv Engagem* **8**, 26 (2022). https://doi.org/10.1186/s40900-022-00360-y

Demographic Characteristics		N (%)
Race	Non-Hispanic/Latino(a) Black	201 (41.3%)
	Non-Hispanic/Latino(a) White	206 (42.3%)
	Hispanic	31 (6.4%)
	Asian	21 (4.3%)
	Other/ Multiracial/ Unknown	28 (5.8%)
Gender	Male	92 (19.2%)
	Female	386 (80.4%)
	Other/Unknown	9 (1.8%)
Education	Less than HS	5 (1.0%)
	HS degree or GED	17 (3.5%)
	Some college or Associate degree	98 (20.4%)
	College Degree	133 (27.7%)
	Graduate Degree	227 (47.3%)
		Mean (SD)
Age		41.6 (14.4)

Internal Consistency

Engagement Principle	N Items	Quality		Quantity	
		N	Alpha	N	Alpha
EP1	4	301	0.88	306	0.82
EP2	4	306	0.88	311	0.85
EP3	5	291	0.92	298	0.90
EP4	4	313	0.91	324	0.87
EP5	3	309	0.88	319	0.83
EP6	4	292	0.90	296	0.87
EP7*	3	283	0.83	296	0.79
EP8	5	301	0.92	304	0.91

- Alpha increases to 0.84 (quality scale) and 0.81 (quantity scale) if item EP7.3 removed
  - * *Ep7.3: All partners have the opportunity to be coauthors when the work is published.*
- Results show strong internal consistency

NAME	DOMAIN	LONGITUDINAL SURVEY	NUMBER OF ITEMS	SCORING/ INTERPRETATION	VALIDATION (IF APPLICABLE)
Mainous Trust in Medical Researchers [10]	Trust in medical researchers	1	12	Score ranging from 0 to 48; higher values indicate higher trust	Cronbach's alpha = 0.84
Hall Trust in Medical Researchers [11]	Trust in medical researchers	1	12	Score ranging from 0 to 100; higher values indicate higher trust	Cronbach's alpha = 0.87. Factor model consists of 1 factor.
Survey of community engagement [12]	Community engagement	1	3 categories; 25 items	Average score ranging from 1 to 7; higher scores indicate higher engagement	n/a
Partnership Assessment In community-based Research (PAIR) [13]	Evaluates key dimensions of researchers and community member partnerships	1	5 dimensions; 31 items	Average score ranging from 1 to 5; higher scores indicate higher engagement	Content validation (literature review, experts, cognitive interviews)
Community Engagement Research Index (CERI) [14]	Community engagement in research	2	12	Sum score ranging from 4 to 12; higher scores indicate higher engagement	Face validity (items identified by interview participants), content validity (items based on previously collected qualitative data)
Coalition Self-Assessment Survey (CSAS) trust sub-scale	Trust within coalition	2	7	Average score ranging from 1 to 4; higher scores indicate higher trust	No validation data, but used across several projects

Name	Domain	Longitudinal survey	Number of items	Scoring/ interpretation	Validation (if applicable)
Partnership Self-Assessment Tool (PSAT) – Synergy	Partnership synergy	3	9	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate higher synergy	According to the National Collaborating Centre for Methods and Tools (NCCMT), the PSAT tool has been evaluated, validity properties meet accepted standards, and reliability properties meet accepted standards. They gave the tool a ‘strong’ methodological rating.
Partnership Self-Assessment Tool (PSAT) – decision making	Partnership decision making	3	3	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate better decision making	
Partnership Self-Assessment Tool (PSAT) – benefits	Partnership benefits	3	11	Percentage score (out of nonmissing items); higher score indicates more benefits	
Partnership self-assessment tool (PSAT) – Drawbacks	Partnership drawbacks	3	6	Percentage score (out of nonmissing items); higher score indicates more drawbacks	
Partnership Self-Assessment Tool (PSAT) – comparing benefits and drawbacks	Comparing benefits and drawbacks	3	1	1='Drawbacks greatly exceed the benefits' to 5='Benefits greatly exceed the drawbacks'	
Partnership Self-Assessment Tool (PSAT) – satisfaction	Partnership satisfaction	3	5	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate higher satisfaction	

NAME	DOMAIN	LONGITUDINAL SURVEY	NUMBER OF ITEMS	SCORING/ INTERPRETATION	VALIDATION (IF APPLICABLE)
Partnership Self-Assessment Tool (PSAT) – Leadership	Partnership leadership	3	11	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate better leadership	According to the National Collaborating Centre for Methods and Tools (NCCMT), the PSAT tool has been evaluated, validity properties meet accepted standards, and reliability properties meet accepted standards. They gave the tool a 'strong' methodological rating.
Partnership Self-Assessment Tool (PSAT) – Efficiency	Partnership Efficiency	3	3	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate better efficiency	
Partnership Self-Assessment Tool (PSAT) – Administration/ Management	Partnership administration/ management	3	9	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate better administration/ management	
Partnership Self-Assessment Tool (PSAT) – nonfinancial resources	Partnership nonfinancial resources	3	6	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate has resources	
Partnership Self-Assessment Tool (PSAT) – financial other capital resources	Partnership financial other capital resources	3	3	Average score ranging from 1 to 5, rounded to 0.1; higher scores indicate has resources	
Wilder Collaboration Factors Inventory	Collaboration evaluation	3	6 dimensions, 20 factors, 40 items	Average score ranging from 1 to 5 with dimensions equally weighted; higher scores indicate higher collaboration	Reliability varied for dimensions (alpha 0.50 – 0.93) [19]

Convergent Validity

- Measure correlations
- Spearman's correlation coefficient and p-values comparing REST to other measures of engagement

Interpreting the Correlation Coefficient	
Absolute Value of Correlation Coefficient	**Interpretation**
0.90 to 1.00	Very high correlation
0.70 to 0.90	High correlation
0.50 to 0.70	Moderate correlation
0.30 to 0.50	Low correlation
0.00 to 0.30	Negligible correlation

Source: Mukaka MM. Statistics corner: a guide to appropriate use of correlation coefficient in medical research. Malawi Med J. 2012;24(3):69-71. doi:10.1016/j.cmpb.2016.01.020.

Convergent Validity

Other Measures	Our Measure – Quality			Our Measure – Quantity		
	N	Spearman's R	P-Value	N	Spearman's R	P-Value
Medical Mistrust	322	0.11 (negligible)	0.05	325	0.12 (negligible)	0.03
Trust in Medical Researchers	322	0.18 (negligible)	<0.001	324	0.21 (negligible)	<0.001
Community Engagement in Research Index (CERI)	320	0.19 (negligible)	0.001	323	0.25 (negligible)	<0.001
Partnership Assessment in community-based Research (PAIR) Measure	322	0.34 (low)	<0.001	325	0.44 (low)	<0.001
Coalition Self-Assessment Survey – Trust*	323	0.40 (low)	<0.001	328	0.42 (low)	<0.001

*Correlation with EP8 (trust)

Convergent Validity

Other Measures	Our Measure – Quality			Our Measure – Quantity		
	N	Spearman's R	P-Value	N	Spearman's R	P-Value
Kagan Measure	319	0.50 (moderate)	<0.001	322	0.56 (moderate)	<0.001
Partnership Self-Assessment Tool (PSAT) – Synergy	325	0.61 (moderate)	<0.001	328	0.62 (moderate)	<0.001
PSAT - Satisfaction	324	0.61 (moderate)	<0.001	327	0.65 (moderate)	<0.001
Wilder Collaboration	325	0.54 (moderate)	<0.001	328	0.54 (moderate)	<0.001

TBM

ORIGINAL RESEARCH

Strategies of community engagement in research: definitions and classifications

Vetta L. Sanders Thompson,[1] Nicole Ackermann,[2] Kyla L. Bauer,[2] Deborah J. Bowen,[3] Melody S. Goodman[4]

[1]Washington University in St. Louis, Brown School, St. Louis, MO 63130, USA

[2]Washington University in St. Louis School of Medicine, St. Louis, MO 63110, USA

[3]University of Washington, Department of Bioethics and Humanities, Seattle, WA 98195-7120, USA

[4]New York University, School of Global Public Health, New York, NY 10003, USA

Correspondence to: Vetta L. Sanders Thompson, Vthompson22@wustl.edu

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Abstract

Engagement activities are defined along a continuum that analyzes and represents nonacademic stakeholder activities and interactions with academic researchers. Proposed continua begin with none to limited stakeholder inclusion and input into research and continue with descriptions of increasing presence, input, and participation in decision-making. Despite some agreement in the literature, development of consistent terminology and definitions has been recommended to promote the common understanding of strategies in engaged research. This paper sought to develop and understand classifications and definitions of community-engaged research that can serve as the foundation of a measure of engaged research that permits comparisons among engagement strategies and the outcomes that they produce in health- and healthcare-related research studies. Data on academic and stakeholder perceptions and understandings of classifications and definitions were obtained using Delphi process ($N = 19$) via online and face-to-face survey and cognitive response interviews ($N = 16$). Participants suggested the need for more nuanced understanding of engagement along portions of the continuum, with active involvement and decision-making as engagement progressed. Cognitive interview responses

Implications

Practice: It is possible for researchers and stakeholders to clarify terminology so that roles, participation, and benefits are clear at each level of community engagement along the continuum.

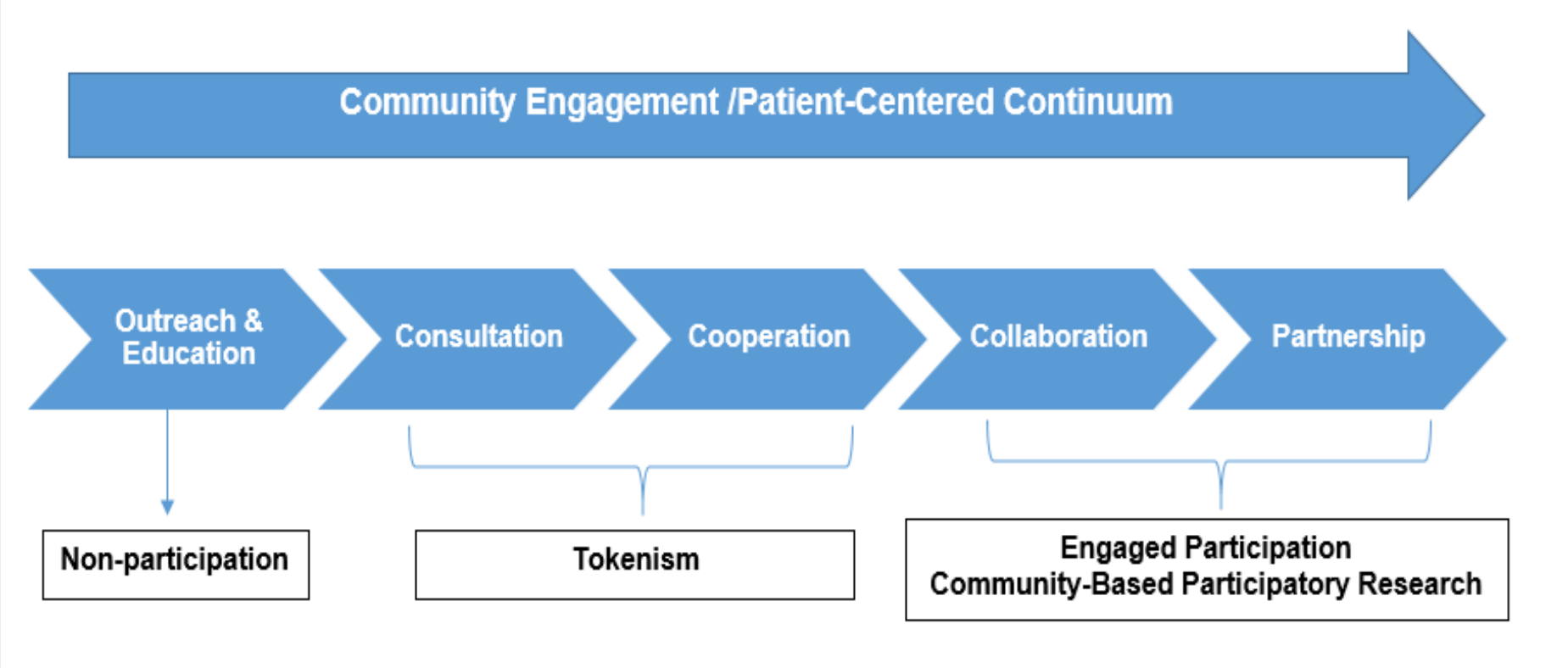
Policy: Policymakers who want to encourage community-engaged research must consider similarities and differences that may emerge in community and academic perceptions of community-engaged research.

Research: Future research is needed to clarify the understanding and depiction of community engagement activities and strategies that guide measure development.

was formed, composed of individuals from the

Source: Sanders Thompson, VL., Ackermann N, Bauer, KL, Bowen, DJ, Goodman MS. Strategies of community engagement in research: definitions and classifications, *Translational Behavioral Medicine*, , ibaa042, https://doi.org/10.1093/tbm/ibaa042

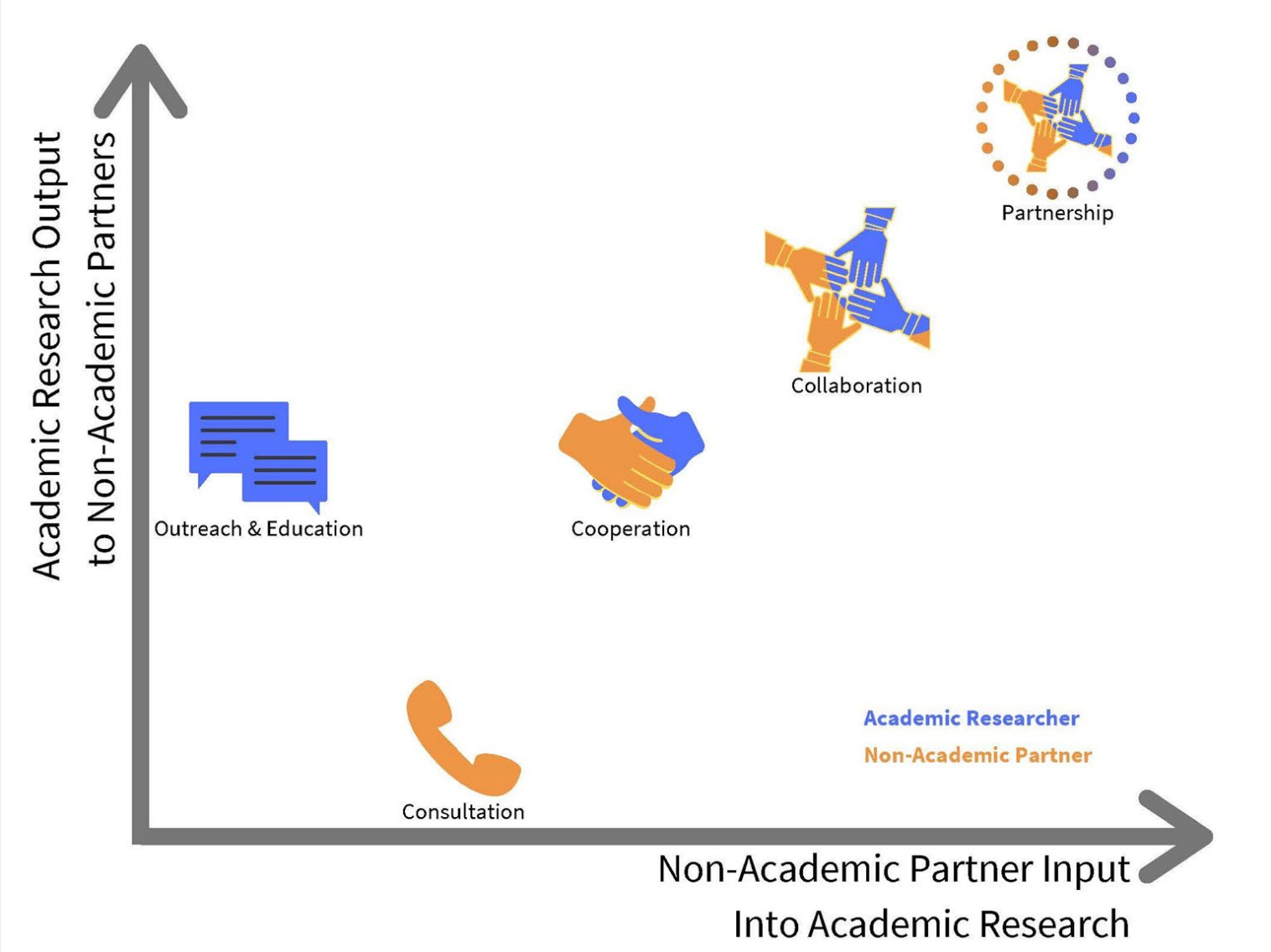
Categories and Classifications of Stakeholder Engagement - Revised



Project Classifications – Survey 4

Community Engagement in Research Level	Quality		Quantity	
	N	Mean (SD)	N	Mean (SD)
Outreach & Education	131	3.6 (1.0)	132	3.9 (0.8)
Consultation	41	3.3 (0.9)	41	3.7 (0.8)
Cooperation	59	3.7 (0.8)	61	3.8 (0.6)
Collaboration	60	3.9 (0.8)	61	4.0 (0.6)
Partnership	41	4.1 (0.9)	41	4.3 (0.8)

Categories of Partner Engagement in Research



Source: Sanders Thompson, VL., Ackermann N, Bauer, KL, Bowen, DJ, Goodman MS. Strategies of community engagement in research: definitions and classifications, *Translational Behavioral Medicine*, , ibaa042, https://doi.org/10.1093/tbm/ibaa042

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MDPI

Article

Development and Validation of a Brief Version of the Research Engagement Survey Tool

Melody S. Goodman [1,*], Nicole Ackermann [2], Kristyn A. Pierce [1], Deborah J. Bowen [3] and Vetta Sanders Thompson [4]

1 School of Global Public Health, New York University, New York, NY 10003, USA; kp2224@nyu.edu
2 Division of Public Health Sciences, School of Medicine, Washington University in St. Louis, St. Louis, MO 63110, USA; nackermann@wustl.edu
3 Department of Bioethics and Humanities, University of Washington, Seattle, WA 98195, USA; dbowen@uw.edu
4 Brown School, Washington University in St. Louis, St. Louis, MO 63130, USA; vthompson22@wustl.edu
* Correspondence: melody.goodman@nyu.edu

Abstract: The Research Engagement Survey Tool (REST) examines the level of partner engagement in research studies. This study used mixed methods, including web-based surveys (N = 336), a modified Delphi process (N = 18), and cognitive response interviews (N = 16), with convenience sampling to develop and validate a short version of the REST. We conducted factor analysis and calculated internal consistency for the condensed REST. We validated the condensed REST against the comprehensive REST. All analyses were carried out on two scales (quality and quantity) based on Likert-type response options. We examined convergent validity with other measures theoretically associated with the REST (e.g., the Community Engagement Research Index and the Partnership Self-Assessment Tool). This study produced a 9-item condensed version of the REST. The condensed REST loads on 1 factor, has high internal consistency (Cronbach's alpha = 0.92 for the quantity scale; 0.94 for the quality scale), is significantly correlated ($\rho = 0.97$; $p < 0.001$ for both scales) with the comprehensive (32-item) REST, and has negligible, low, and moderate correlation with other measures (e.g., the Partnership Assessment In community-based Research, trust in medical researchers, and the Coalition Self-Assessment Survey). Use of the condensed REST will reduce participant burden and time to complete. This standardized and validated quantitative measure is useful to compare engagement across projects or within a project over time.

check for updates

Citation: Goodman, M.S.; Ackermann, N.; Pierce, K.A.; Bowen, D.J.; Thompson, V.S. Development and Validation of a Brief Version of the Research Engagement Survey Tool. *Int. J. Environ. Res. Public Health* **2021**, *18*, 10020. https://doi.org/10.3390/ijerph181910020

Brief Measure

- To reduce partner burden, developed a condensed version of the measure

- Considered several methods in determining which items to cut including:
  - *Amount of 'not applicable' and missing responses*
  - *Factor analysis results (cross/non/low loading items)*
  - *Distribution of responses*
  - *Item response theory results (slopes and threshold ranges)*
  - *Item importance and difficulty rankings on cognitive interviews*
  - *Delphi panel final agreement and EP importance rankings*

Brief Measure & Full Measure Comparison

Variable	N	# of Items	Cronbach's alpha	Mean	SD	Median	Min	Max	Spearman Correlation with Full Version
Quality									
Condensed Version	332	9	0.94	3.7	0.9	3.9	1	5	0.97 (p<0.001)
Full Version	332	32	0.98	3.7	0.9	3.8	1	5	--
Quantity									
Condensed Version	336	9	0.92	4.0	0.8	4.1	1.3	5.0	0.97 (p<0.001)
Full Version	336	32	0.97	3.9	0.7	4.0	1.5	5.0	---

Brief Measure & Full Measure Comparison of EP Means – Quality Scale*

Comparison	Brief Mean (SD)	Full Mean (SD)
EP1	3.8 (1.1)	3.7 (0.9)
EP2	3.6 (1.1)	3.7 (1.0)
EP3	3.6 (1.2)	3.6 (1.0)
EP4	3.8 (1.1)	3.7 (1.0)
EP5	3.7 (1.1)	3.8 (1.0)
EP6	3.7 (1.0)	3.6 (1.0)
EP8	3.8 (1.1)	3.8 (1.0)

*Quantity results similar, with means all consistently higher than quality

A Study Examining the Usefulness of a New Measure of Research Engagement

Deborah J. Bowen, PhD[1], Nicole Ackermann, MPH[2], Vetta Saunders Thompson, PhD[3], Andrea Nederveld, MD, MPH[4], and Melody Goodman, PhD[5]

[1]Department of Bioethics and Humanities, University of Washington, Seattle, WA, USA; [2]Division of Public Health Sciences, Washington University School of Medicine, St. Louis, MO, USA; [3]Brown School, Washington University in St. Louis, St. Louis, MO, USA; [4]Department of Family Medicine, University of Colorado Anschutz Medical Campus, Aurora, CO, USA; [5]Department of Biostatistics, New York University School of Global Public Health, New York, NY, USA.

INTRODUCTION: Engagement of relevant stakeholders' ideas, opinions, and concerns is critical to the success of modern research projects. We have developed a tool to measure stakeholder engagement, called the Research Engagement Survey Tool (REST). The purpose of this paper is to present the implementation and uptake of the stakeholder engagement measure REST among research teams, including the assessment of barriers and facilitating factors for use of the new research engagement measure in practice.

METHODS: In this implementation study, project team members participated in baseline and follow-up web-based surveys. Web-based interviews were conducted with a subset of project teams that implemented the REST. On the baseline survey, project teams were asked to provide details about up to three ongoing or recently completed projects, were asked if they agreed with compensation for REST completion, and were asked if they would like to send the survey to stakeholders or would prefer our project team to email their project stake-

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DOI: 10.1007/s11606-021-06993-1

INTRODUCTION

Engagement of relevant stakeholders' (e.g., patients and their families, clinicians, health systems, policy makers, community organizations, advocacy groups) ideas, opinions, and concerns is critical to the success of modern research projects. To facilitate acceptance of the important role that stakeholder engagement plays in rigorous science, we must evaluate its impact on research development, implementation, and outcomes [1]. We have developed a tool to measure stakeholder engagement, called the Research Engagement Survey Tool (REST) [2, 3]. The utilization of REST as an evaluation tool depends on its dissemination into the hands of research teams and incorporation in the evaluation

Source: Bowen, D.J., Ackermann, N., Thompson, V.S. *et al.* A Study Examining the Usefulness of a New Measure of Research Engagement. *J GEN INTERN MED* **37** (Suppl 1), 50–56 (2022). https://doi.org/10.1007/s11606-021-06993-1

Project Team Follow-Up Web Survey Results (n=20 participants, 26 projects)

Variable	All Completions (n=86)		
	Scale	Mean (SD)	Range
How likely to recommend REST to a colleague	0 (not at all likely) – 10 (extremely likely)	8.2 (1.1)	6 – 10
Importance of measuring partner engagement in research	1 (not at all important) –5 (extremely important)	4.6 (0.5)	4 – 5
Feasibility of Intervention Measure			
The Research Engagement Survey Tool (REST) seems implementable	1 (completely disagree) – 5 (completely agree)	4.4 (0.7)	3 – 5
The REST seems possible.		4.3 (0.7)	3 – 5
The REST seems doable.		4.2 (0.7)	3 – 5
The REST seems easy to use.		4.3 (0.7)	3 – 5

Implementation Phase – Follow Up Qualitative Interviews - Impression of REST

Team members indicated that they liked that the measure was comprehensive and that this made it an attractive tool

Described the REST as a straightforward tool to administer and complete

Positive reactions to the results presented in the categories along the continuum of engagement

Permitted them to think about what they were doing and how they might do it better in new projects or the ongoing project

DISCLAIMER

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Colleagues

- Deborah Bowen (systematic review and PCORI)
- Vetta Sanders Thompson vthompson22@wustl.edu (PCORI)
- Joon-Ho Yu joonhoyu@uw.edu (systematic review)
- Kate West westkate@uw.edu (systematic review)
- Travis Hyams travis.hyams@gmail.com (systematic review)
- Nicole Ackermann nackermann@wustl.edu (PCORI)
- Kyla Bauer kyla.bauer@wustl.edu (PCORI)

Questions?

NYU | SCHOOL OF GLOBAL PUBLIC HEALTH

Melody.goodman@nyu.edu

@goodmanthebrain