IMPACT
SWISS IMPLEMENTATION SCIENCE NETWORK

ADVANCING SUSTAINABILITY RESEARCH IN IMPLEMENTATION SCIENCE

September 21, 2022

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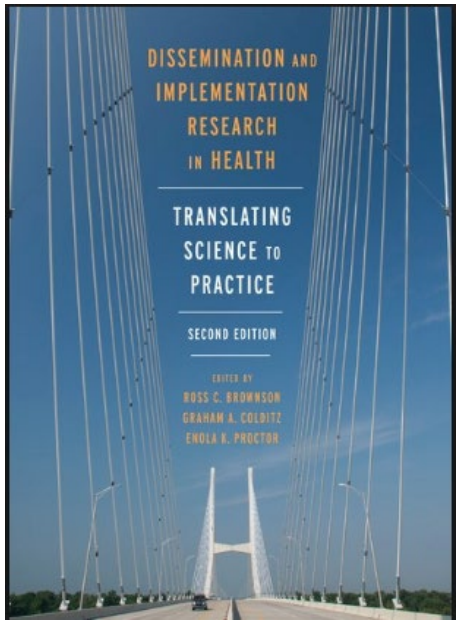
Overview



- Introduction to sustainability conceptualizations, measurement, frameworks, tools/resources
- Examples from empirical research on sustainability in implementation science
- Future directions & opportunities to advance sustainability research in the field

Implementation science is about **translating research** and ensuring that our science & evidence-base has an equitable **impact** on practice & population health

The scientific study of **methods, strategies, frameworks** to promote adoption and use of evidence-based interventions in **real-world** clinical and public health settings to improve health and quality of care

Eccles, M. P., & Mittman, B. S. (2006). Welcome to Implementation Science. *Implementation Science, 1(1), 1.*

Where does *sustainability* of evidence-based interventions fit in within implementation science?

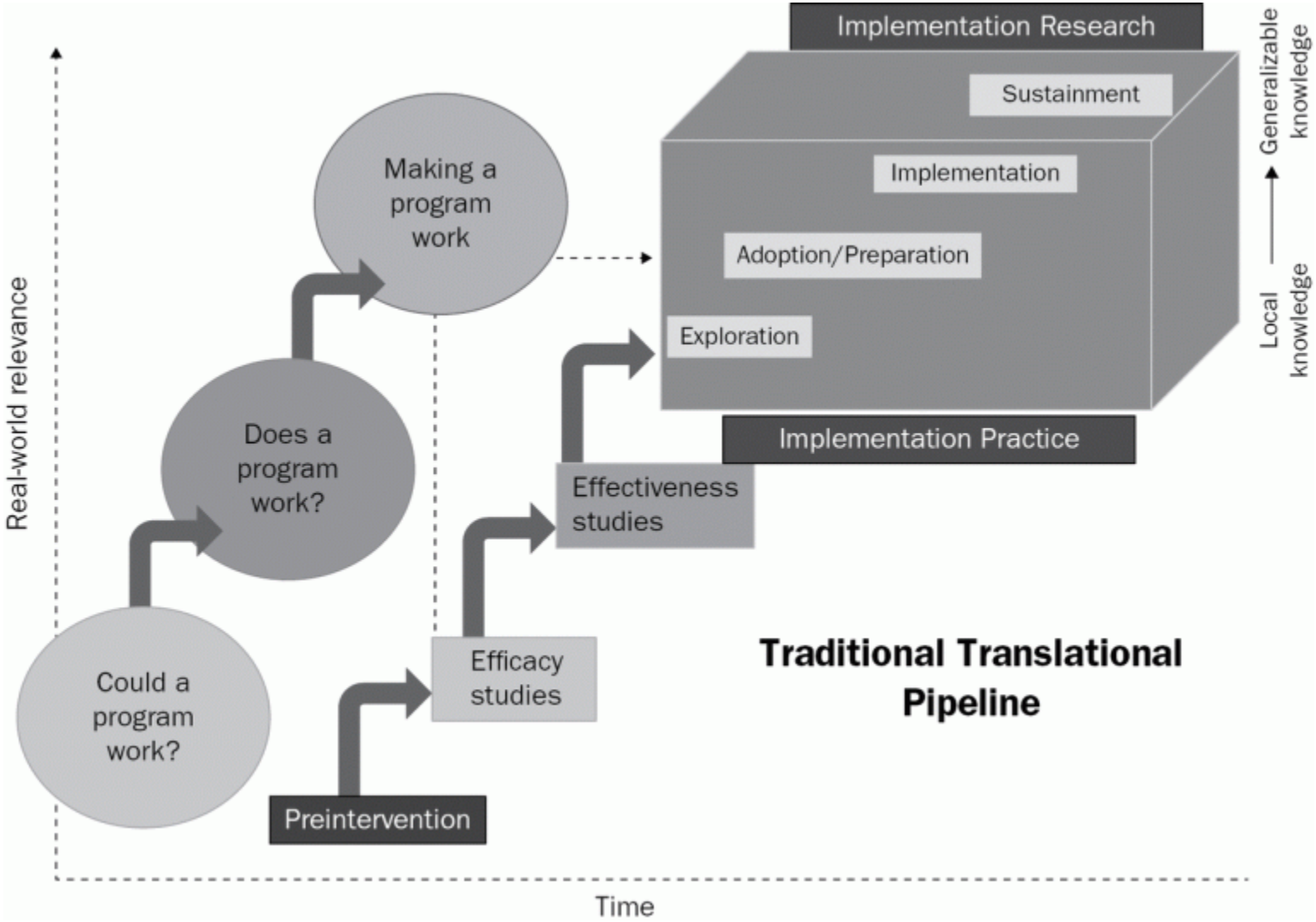
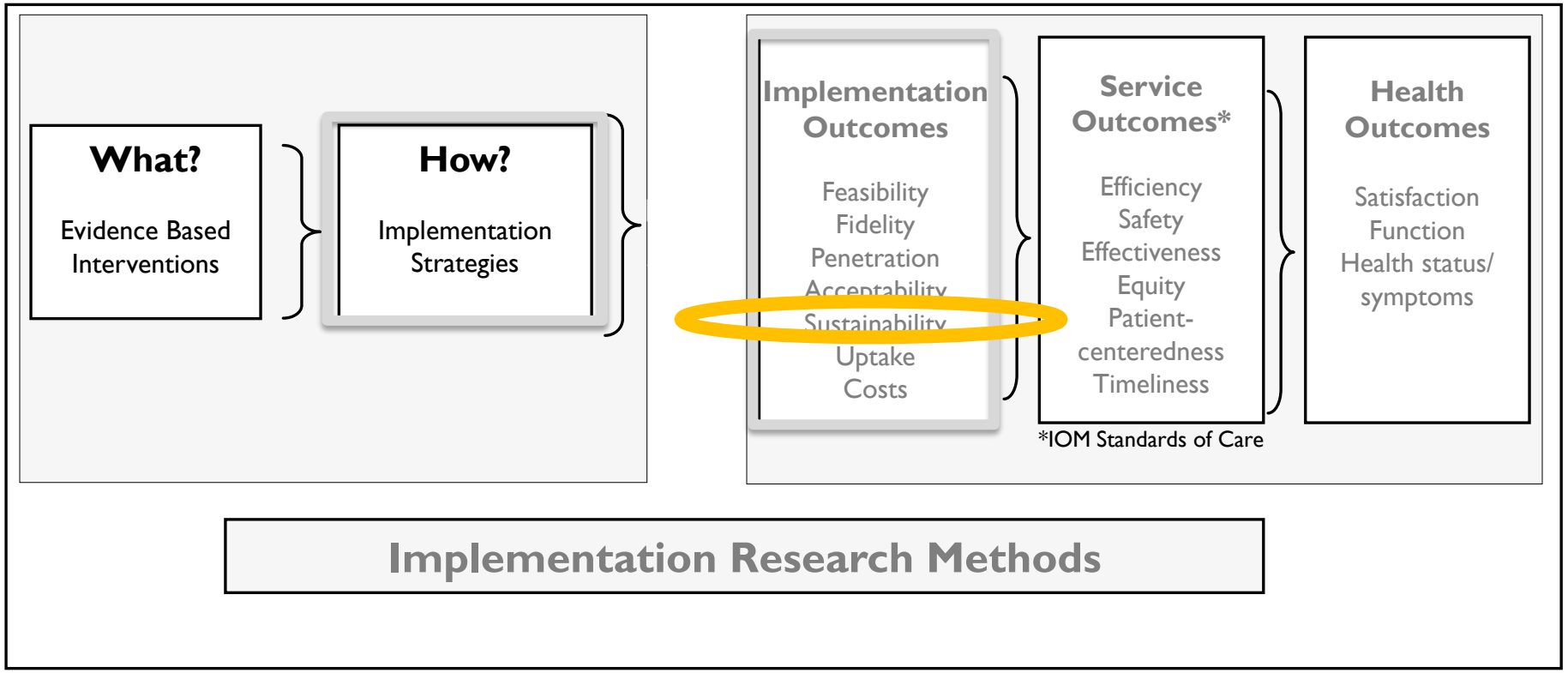


Figure 13.1 **Stages of research** and phases of dissemination and implementation.

Brownson, R. C., G.A. Colditz, and E. K. Proctor. 2018. *Dissemination and implementation research in health:Translating science to practice.*

Implementation Science Framework (Proctor et al. 2009)



Proctor, E. K., Landsverk, J., Aarons, G., Chambers, D., Glisson, C., & Mittman, B. (2009). Implementation Research in Mental Health Services: an Emerging Science with Conceptual, Methodological, and Training challenges. *Administration and Policy in Mental Health*

Johnson et al. Implementation Science (2019) 14:50
https://doi.org/10.1186/s13012-019-0895-1

Implementation Science

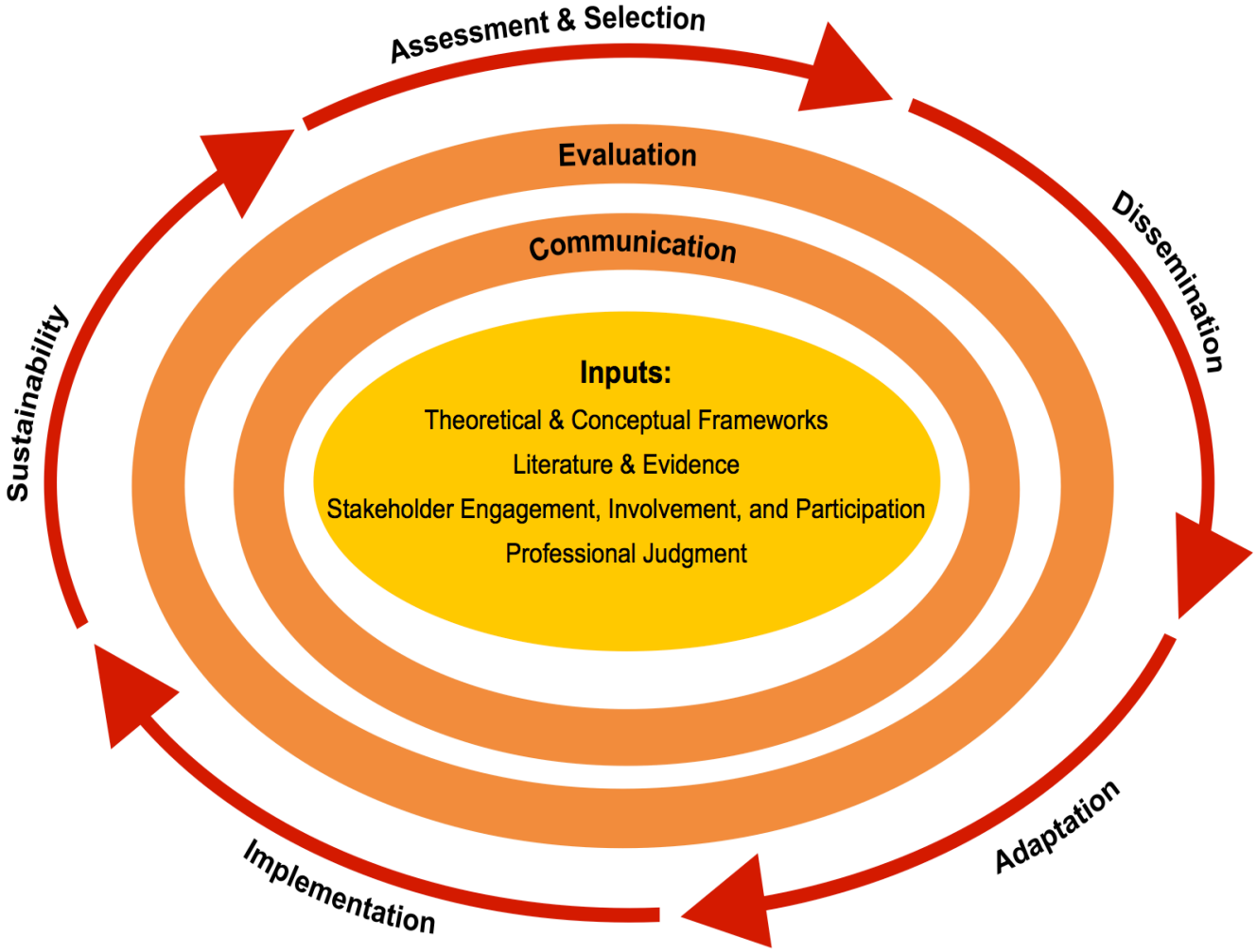
SHORT REPORT Open Access

How do researchers conceptualize and plan for the sustainability of their NIH R01 implementation projects?

Alekhya Mascarenhas Johnson[1], Julia E. Moore[1], David A. Chambers[2], Jennifer Rup[1], Camellia Dinyarian[1] and Sharon E. Straus[1,3*]

3 % focused solely on sustainability

Domains of D&I Research



Koh S, Lee M, Brotzman LE, Shelton RC (2018). An orientation for new researchers to key domains, processes, and resources in implementation science. Translational Behavioral Medicine

Why is sustainability important?

- Common challenge in sustaining programs and health benefits across range of settings and intervention types
  - **40% - 60%** of health programs sustain at least one component 1-6 years after adoption (Scheirer, 2005)

- Accountability for significant investments in evidence-based programs: improved health or reduction in inequities?
  - Mistrust/wariness among community partners/funders
  - Frustration among practitioners, partners, staff, leaders

- One of the "most significant translational research issues" we face in translational science (Proctor, 2015)
  - Focusing on sustainability is critical to maximize health & societal impact/benefits of evidence-based interventions

Conceptualizing Sustainability

- ***Sustainability:*** the continued use of program components for the sustained achievement of desirable program goals, benefits, health outcomes *(Scheirer & Dearing, 2011)*

- **Key Dimensions of Sustainability:** *(Shelton et al., 2018)*
  - Continuation of program components/core elements of intervention/EBI; adaptation
  - Continuation of health benefits/health outcomes
  - Maintaining partnerships, infrastructure, networks
  - Institutionalization?

Static → Dynamic

Scheirer MA, Dearing JW. 2011. An agenda for research on the sustainability of public health programs. *Am. J. Public Health* 101:2059

Shelton, R. C., Cooper, B. R., & Stirman, S. W. (2018). The Sustainability of Evidence-Based Interventions and Practices in Public Health and Health Care. *Annual Review of Public Health, 39(1), null. doi:10.1146/annurev-publhealth-040617-014731*

Evolving Sustainability Definition

"(1) After a defined period of time, (2) the program, clinical intervention, and/or implementation strategies continue to be delivered and/or (3) individual behavior change (i.e., clinician, patient) is maintained; (4) the program and individual behavior change may evolve or adapt while (5) continuing to produce benefits for individuals/systems."

(Moore and colleagues, 2017)

Moore JE, Mascarenhas A, Bain J, Straus SE. 2017. Developing a comprehensive definition of sustainability. Implementation Science.12(1).

Methodological & Pragmatic Challenges

- Mostly **descriptive**, exploratory, single-site
- Rarely guided by **conceptual frameworks**
- **Inconsistent definitions/measures** of sustainability
- Sustainability measured **dichotomously/self-report**
- Variable time periods for follow-up; **short-term**
- Rarely **prospective**
- **Latency period** to see impact of programs

Stirman SW, et al. 2012. The sustainability of new programs and innovations: a review of the empirical literature and recommendations for future research. Implement. Sci. 7:17; Braithwaite et al. 2020; BMJ Open; Built to last? The sustainability of healthcare system improvements, programmes and interventions: a systematic integrative review

What do we know about sustainability?

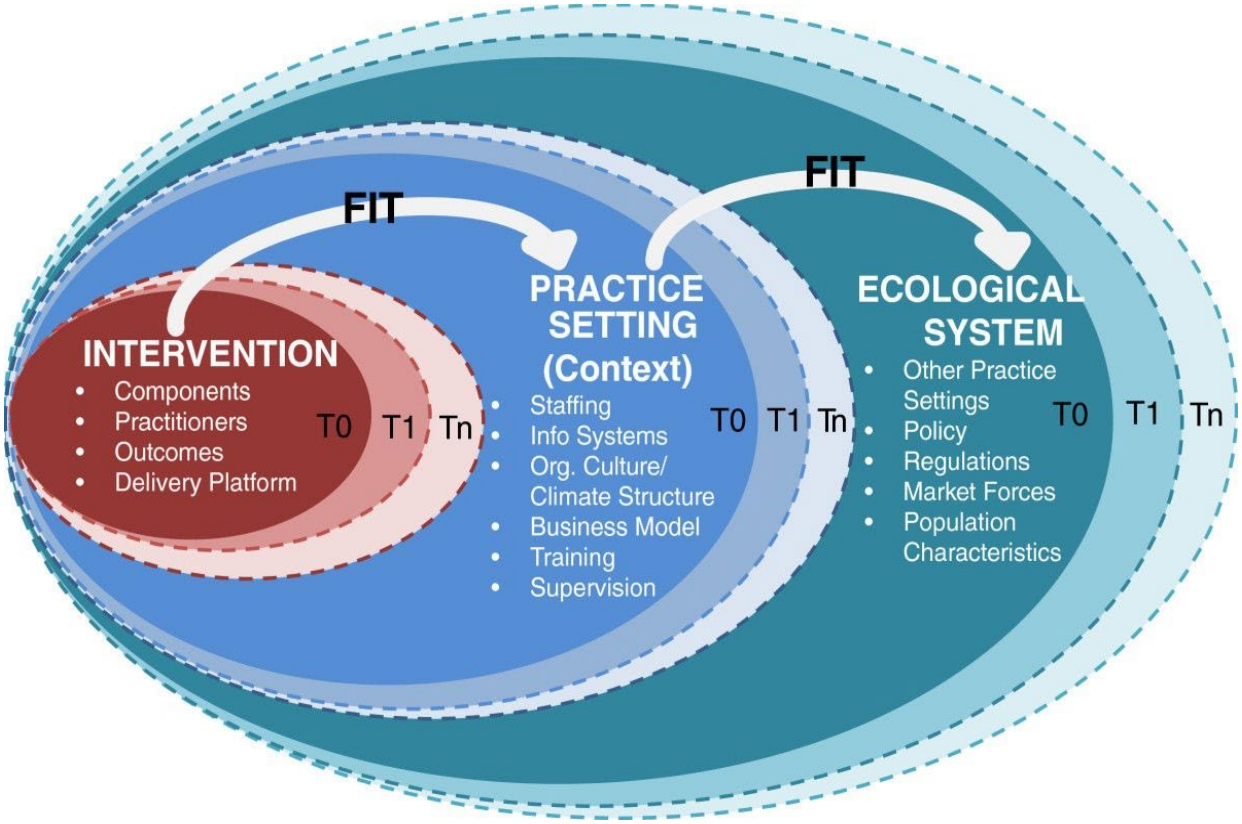
Review of **125** studies of **sustainability**: *(Stirman et al, 2012)*

- **45%** measured continued delivery of program components
- **22%** of the studies reported health behaviors/outcomes
- **Less than half** of programs continued at high levels of fidelity

- Little information in literature regarding **adaptations**:
  - Which components were continued or discontinued
  - Why and what adaptations were made
  - Health impact of partially sustained programs

Stirman SW, Kimberly J, Cook N, Calloway A, Castro F, Charns M. 2012. The sustainability of new programs and innovations: a review of the empirical literature and recommendations for future research. Implement. Sci. 7:17

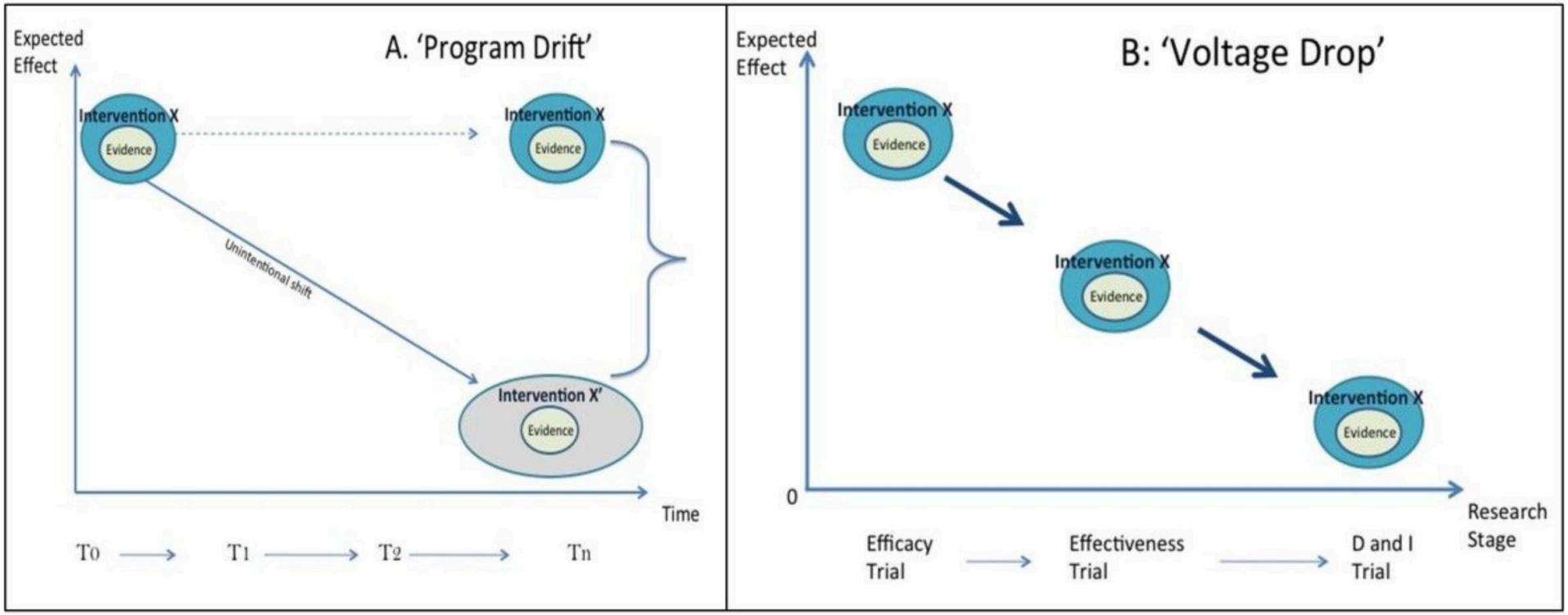
Dynamic Sustainability Framework (DSF)



The Dynamic Sustainability Framework (DSF) Focuses on continued learning and evaluation, problem-solving, and ongoing adaptations of interventions to enhance their fit with different populations and within differing contexts over time, and as new evidence emerges

Chambers, D. A., Glasgow, R. E., & Stange, K. C. (2013). The dynamic sustainability framework: addressing the paradox of sustainment amid ongoing change. *Implementation Science*, *8*(1), 117.

DSF questioned traditional views of sustainability



Voltage Drop: interventions expected to yield lower benefits over time as they move from efficacy to effectiveness to implementation to sustainability

Program Drift of fielded intervention over time: deviation from manualized protocols is assumed to decrease benefits

Chambers, D. A., Glasgow, R. E., & Stange, K. C. (2013). The dynamic sustainability framework: addressing the paradox of sustainment amid ongoing change. *Implementation Science*, *8*(1), 117.

What Influences Sustainability?

- In addition to funding, range of broad factors identified as potentially important sustainability determinants:
  - **Outer context:** integration/alignment with policies, regulations, financing, external partnerships
  - **Inner context:** organizational infrastructure, support & readiness (funding, resources, leadership, champion, workflow/staffing)
  - **Characteristics of intervention** and population; fit (evidence, adaptable, costly, address patient & community needs)
  - **Practitioner/implementer/population characteristics:** self-efficacy, attitudes, competing demands, benefits/value, roles

Scheirer MA. 2005. Is sustainability possible? A review and commentary on empirical studies of program sustainability. *Am. J. Eval.*

Shelton, R. C., Cooper, B. R., & Stirman, S. W. (2018). The Sustainability of Evidence-Based Interventions and Practices in Public Health and Health Care. *Annual Review of Public Health, 39(1), null. doi:10.1146/annurev-publhealth-040617-014731*

Are there Barriers & Determinants Specific to Sustainability?

- Dynamic policy landscape, shifting/competing organizational, leadership, & system priorities
- Minimal, short-term funding/organizational resources limit long-term continuity without additional investment & support
- Challenging to document long-term impact, value, & ROI of sustaining a program with limited resources: political will
- Provider, practitioner, implementer, leadership turnover & attrition
- Sustainability critical for health equity: particularly challenging for low-resource settings & populations experiencing inequities

Empirical Examples: How can we advance a focus on sustainability in our implementation research?

Sustainability of Go Sun Smart

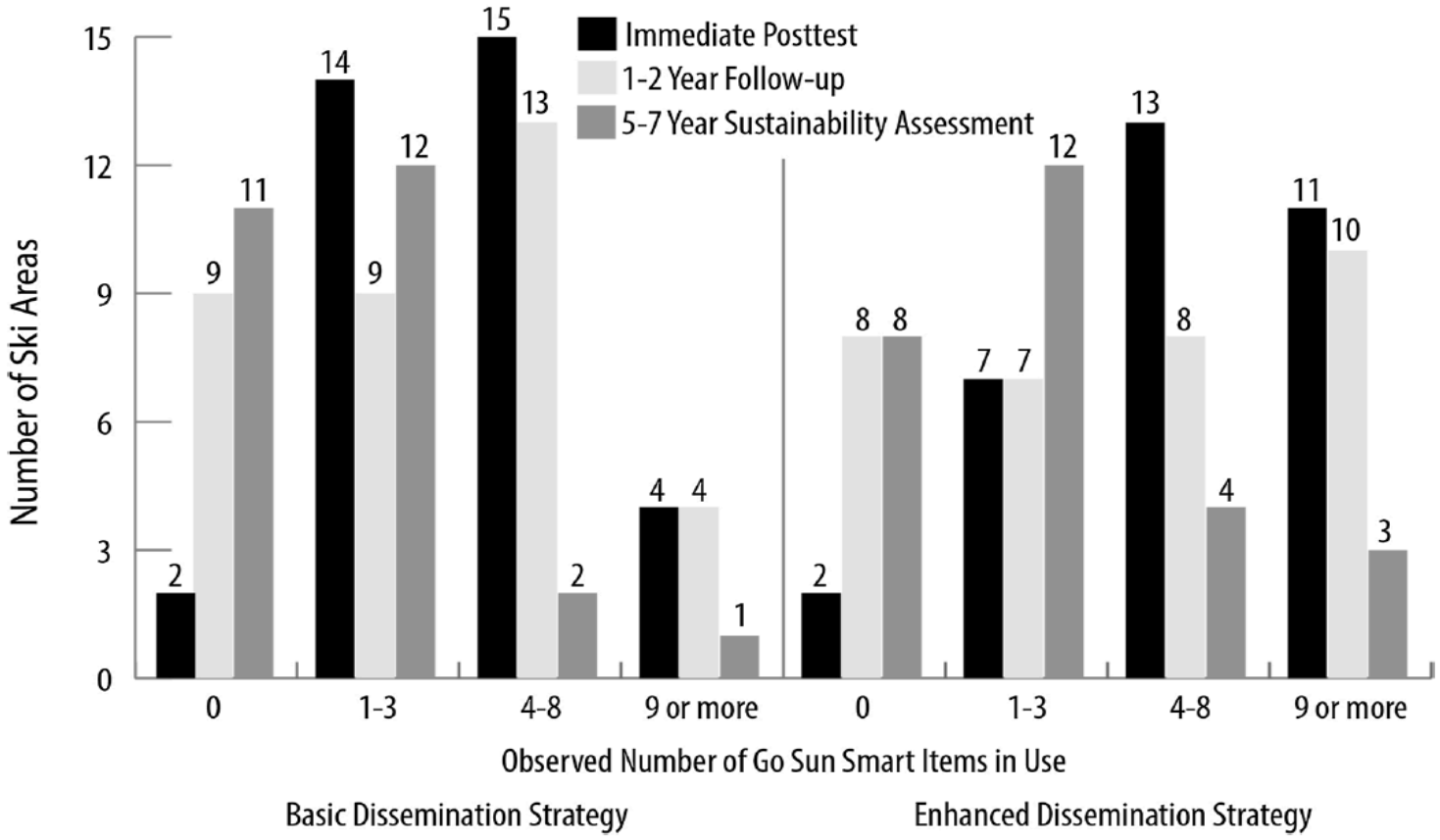


Fig 2 | Observed number of Go Sun Smart items in use by Basic and Enhanced Dissemination Strategy at Immediate Posttest (0_1), 1- to 2-year follow-up (0_2), and 5- to 7-year sustainability assessment (0_3)

Buller, D. B., Walkosz, B. J., Andersen, P. A., Scott, M. D., & Cutter, G. R. (2015). Sustained use of an occupational sun safety program in a recreation industry: follow-up to a randomized trial on dissemination strategies. *Translational behavioral medicine*, *5*(4), 361-371.

Sustainability of Go Sun Smart

- **Go Sun Smart** demonstrated modest sustainability 5-7 years after its distribution in prospective, mixed-methods evaluation
  - Intervention communication had declined
  - Managers held weaker attitudes about intervention
- **Manager turnover/attrition** key factor in discontinuance
- Level of **organizational stability** is necessary to increase sustainability of program & its impact

ORIGINAL RESEARCH

Sustained use of an occupational sun safety program in a recreation industry: follow-up to a randomized trial on dissemination strategies

David B. Buller, PhD,[1] Barbara J. Walkosz, PhD,[1] Peter A. Andersen, PhD,[2] Michael D. Scott, PhD,[3] Gary R. Cutter, PhD[4]

Example: The National Witness Project Evidence-based Lay Health Advisor Program

NWP Priority: How to sustain their program?

The National Witness Project

- **Evidence-based Lay Health Advisor (LHA) program** to address cancer disparities/equity among African American women

- LHAs deliver group programs in range of community settings:
  - Trusted peers delivering resources, education, systems navigation
  - Strengths-based: empowerment messages and social support
  - Addresses social & structural factors: mistrust, stigma, discrimination
  - Testimonials & narratives from cancer survivors (Peers/Role Models)
  - Culturally centered, faith-based, co-created w/ women in community

- **Effective** in increasing routine breast/cervical cancer screening & follow up; NCI Evidence-based Cancer Prevention/Control Program

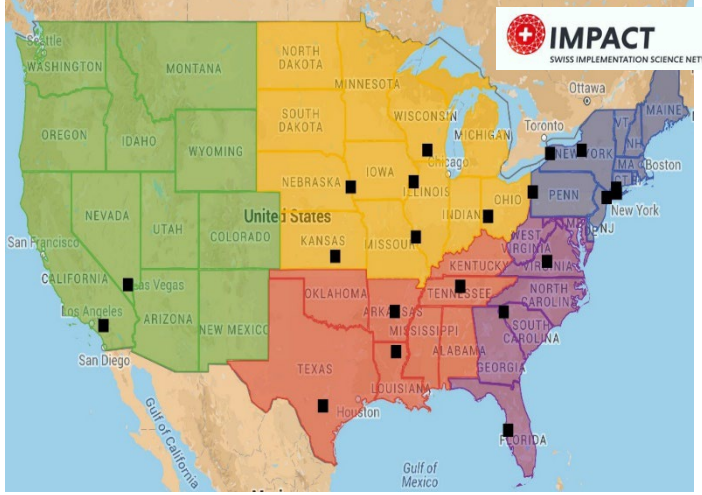
- For 30 years, NWP disseminated in 40 sites; 500+ LHAs & reaches 15,000 women/yr: **Face challenges to sustainability & LHA attrition**

WITNESSES

IN CHURCH, PEOPLE WITNESS TO SAVE SOULS.

AT THE WITNESS PROJECT®, THEY WITNESS TO SAVE LIVES.

Methods (NCI Grant)



- Parallel Mixed Methods Design:
  - **Concurrent, convergent design**
  - **Surveys and qualitative interviews**
  - **8 sites: range of community, academic, public health settings**
  - **76 Project Directors and Lay Health Advisors**
- Prospective, theory-based baseline & FU data collection **~18-24m**
- Follow-up Data Collection
  - Program director reports/records (~24 m later)
    - **Retention** (LHA conduct sessions in past year?)
    - **Activity levels** How many sessions did the LHA complete in the past year?): mean/median
    - About 1/3 of LHAs inactive at end of 2 years

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Research Question: What are the characteristics and capacity of LHAs (implementers) in community settings?

HEALTH EDUCATION & BEHAVIOR

Original Article

Health Education & Behavior
2017, Vol. 44(1) 153–164

DOI: 10.1177/1090198116646365
journals.sagepub.com/home/heb
SAGE

Advancing Understanding of the Characteristics and Capacity of African American Women Who Serve as Lay Health Advisors in Community-Based Settings

Rachel C. Shelton, ScD, MPH[1], Sheba King Dunston, EdD, MPH, CHES[1], Nicole Leoce, MS[1], Lina Jandorf, MA[2], Hayley S. Thompson, PhD[3], and Deborah O. Erwin, PhD[4]

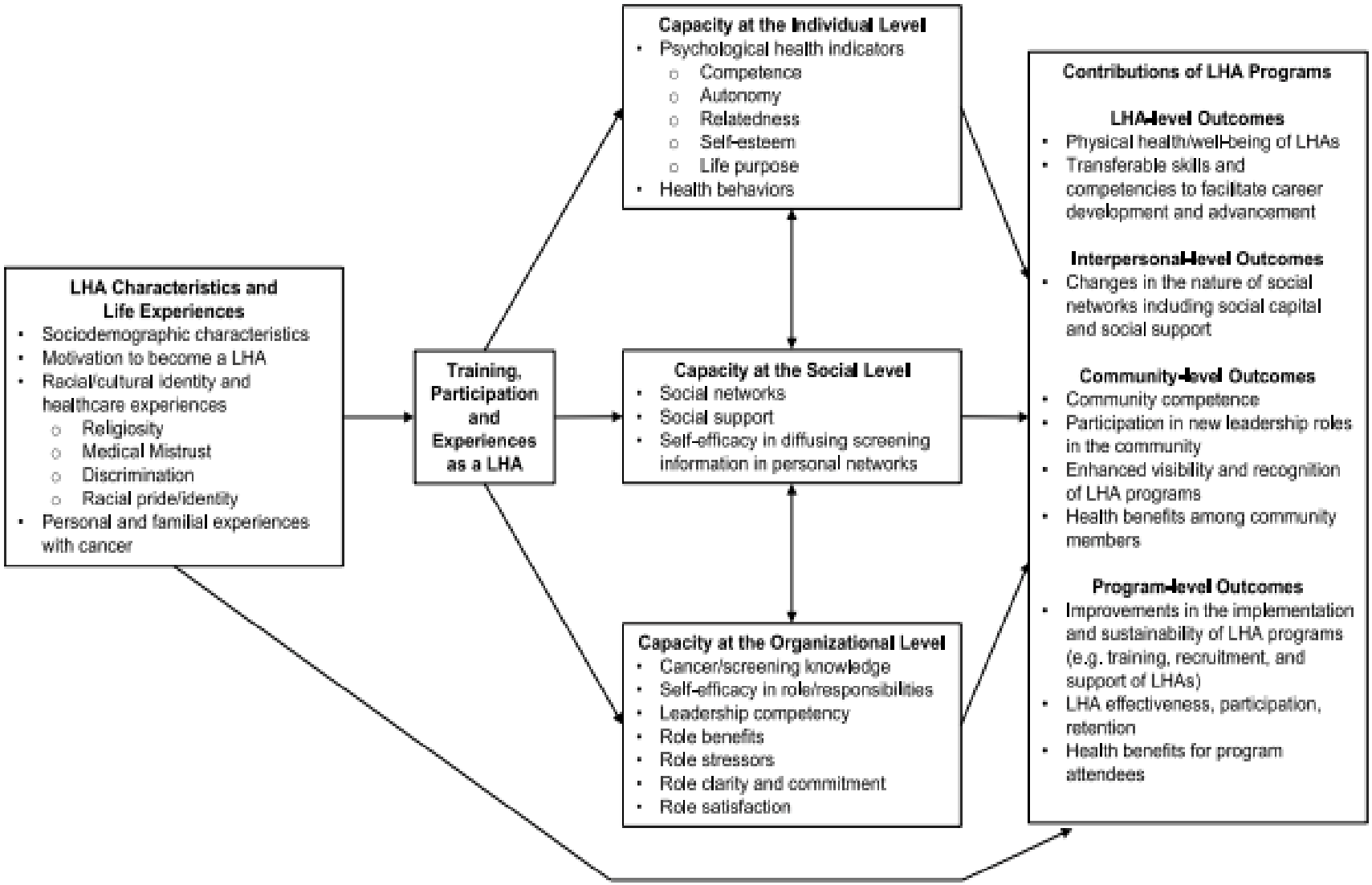


Figure 1. The Framework for Assessing Lay Health Advisor (LHA) Capacity and Contributions: A conceptual framework for understanding LHA capacity and contributions at the individual, social, and organizational levels.

Research Question:

What are the individual, social, and organizational factors that predict activity level and attrition among LHAs?

Shelton *et al. Implementation Science* (2016) 11:41
DOI 10.1186/s13012-016-0403-9

Implementation Science

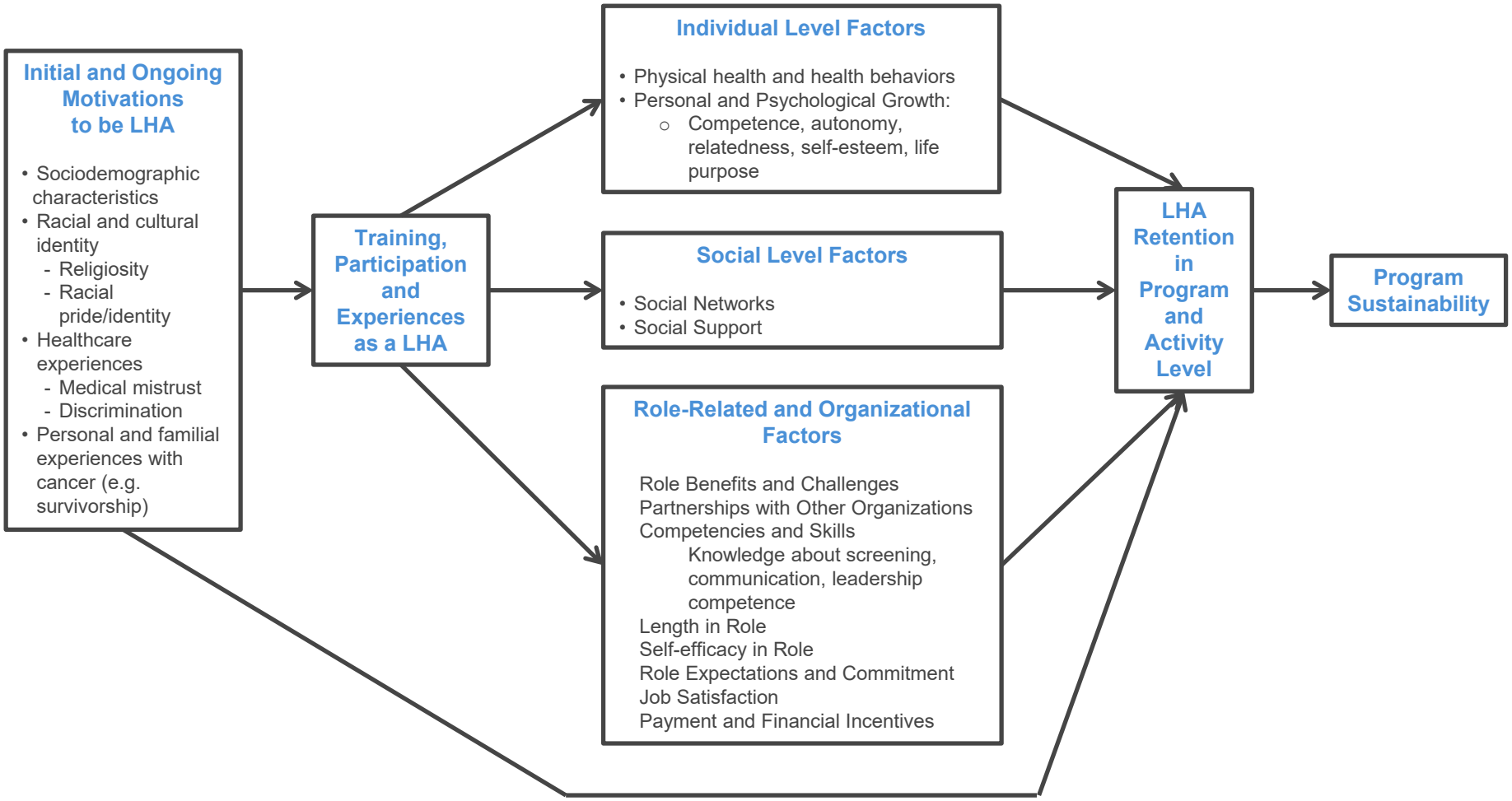
RESEARCH Open Access

CrossMark

Predictors of activity level and retention among African American lay health advisors (LHAs) from The National Witness Project: Implications for the implementation and sustainability of community-based LHA programs from a longitudinal study

Rachel C. Shelton[1*], Sheba King Dunston[1,2], Nicole Leoce[3], Lina Jandorf[4], Hayley S. Thompson[5], Danielle M. Crookes[6] and Deborah O. Erwin[7]

Examining Factors that Predict LHA Retention and Engagement



Key Findings & Implications

*__Organizational & role-related factors__ most impactful for LHA attrition

Partnership with academic institution/cancer center strongest predictor of LHA/RM involvement & activity level

- LHAs from non-academic sites had a **80%** decrease in odds of being active/retained than LHAs from academic sites

- Sites with these strong academic partnerships more likely to:
    - Hold regular trainings
    - Provide stipend
    - Have a steering committee
    - Have physical space for the program

Sustainability Strategy: Form partnerships; identify dual academic and community program champions

Key Findings & Implications

- **Longer time in program associated with lower chance of continued involvement over time**
  - LHAs/RMs may need support to prevent dropout/burnout
  - Sustainability Strategy: Incentives, community recognition, built implementation teams to plan for attrition/burnout

- **Having clear role expectations associated with continued involvement in program**
  - Sustainability Strategy: Clarifying role expectations at initial and ongoing trainings

- **Role self-efficacy (knowledge/skills) associated with higher activity levels over time**
  - Sustainability Strategy: Increase self-efficacy through ongoing training/feedback

Research Question:

What factors influence the attrition of LHAs and sustainability of LHA Programs in low-resource community settings?

TBM

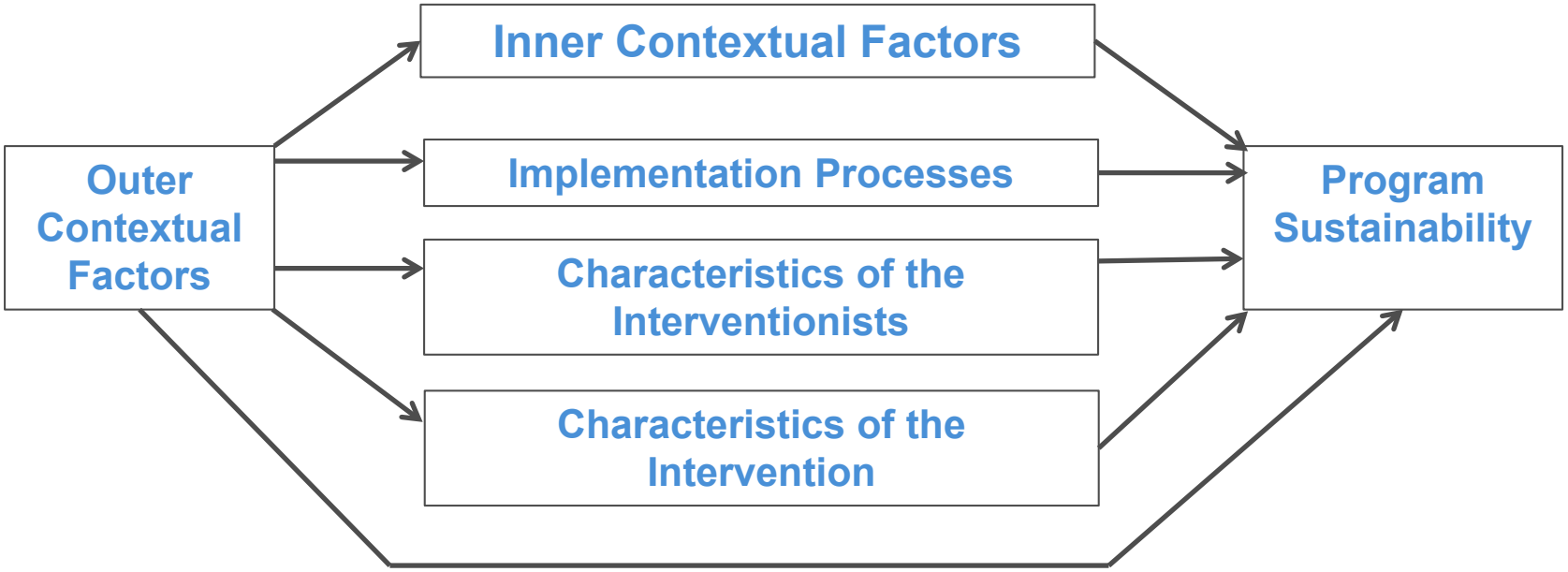
ORIGINAL RESEARCH

CrossMark

Advancing understanding of the sustainability of lay health advisor (LHA) programs for African-American women in community settings

Rachel C. Shelton, ScD, MPH,[1] Thana-Ashley Charles, MPH,[1] Sheba King Dunston, EdD, MPH,[1,2] Lina Jandorf, MA,[3] Deborah O. Erwin, PhD[4]

Qualitative Data- In-depth Understanding of Sustainability Determinants: Why, How



Annual Review of Public Health

Qualitative Research Methods in Chronic Disease: Introduction and Opportunities to Promote Health Equity

Rachel C. Shelton,[1] Morgan M. Philbin,[1] and Shoba Ramanadhan[2]

Editorial

HEALTH EDUCATION & BEHAVIOR

Advancing the Science of Qualitative Research to Promote Health Equity

Health Education & Behavior
2017, Vol. 44(5) 673–676

DOI: 10.1177/1090198117728549
journals.sagepub.com/home/heb
SAGE

Derek M. Griffith, PhD[1], Rachel C. Shelton, ScD, MPH[2], and Michelle C. Kegler, DrPH, MPH[3]

Outer Contextual Factors

1) Partnerships with both Community & Academic Organizations/Cancer Centers:

- Facilitate access to services (e.g. low cost of free mammography screening; referrals to provider networks, diagnostic FU; support groups)
- Access to resources & materials

(e.g. information, space for programs, trainings, administrative support, printers)

"I wanted the program to be fully sustained on their own in the community. But…We need each other. ***The relationships need to be really nourished."***

2) External funding availability/type

- National, state and local funding (instability, short term)
- Lack of value and prioritization of program, disparities & mammography

"We're fortunate in that we have a partnership with a cancer research hospital where there may be some of those resources that are available that we would have influence with."

"Sites that are connected to the community as well as academic institutions thrive better. And the rationale behind that is they have the resources"

Inner Context/Organizational Factors

1) Program Champions and Supportive leadership

Example- NWP Director at local & national levels:

- Contact and connections in community
- Vision and emotional support to staff

"… that's what helps us to be successful- that person who is networking and doing the leg work to get these events scheduled and these opportunities for us…it's a vital part of our success. …You can't run a tight ship if you don't have a good captain and she is an excellent captain,

2) Organizational Infrastructure and stability at local sites & national level (e.g. train-the-trainer model, technical assistance, evaluation tools)

"I think they need to do more at the national level in getting direction and information to the local levels and help their partnerships out in the field. We are their arms and legs, but they are the umbrella that has to make it work"

Overall Findings: Multi-level Context Matters for Sustainability

Barriers:

- Limited funding and nature of funding
- Organizational Infrastructure limited/stability
- Lack of valuing of program (funders, organizations)
- Limited ongoing training and evaluation
- LHA burnout

Facilitators:

- Organizational and community partnerships: Resources/infrastructure
- Project Director leadership/commitment & Champions
- Commitment of LHAs (personal, social, professional benefits)
- Fit with community; addresses gap/need
  - Equity-focused: Developed by and for Black women
- Powerful role of Cancer survivors

Mixed-methods data informed development of conceptual framework that we are now empirically testing in national study (Shelton et al 2017)

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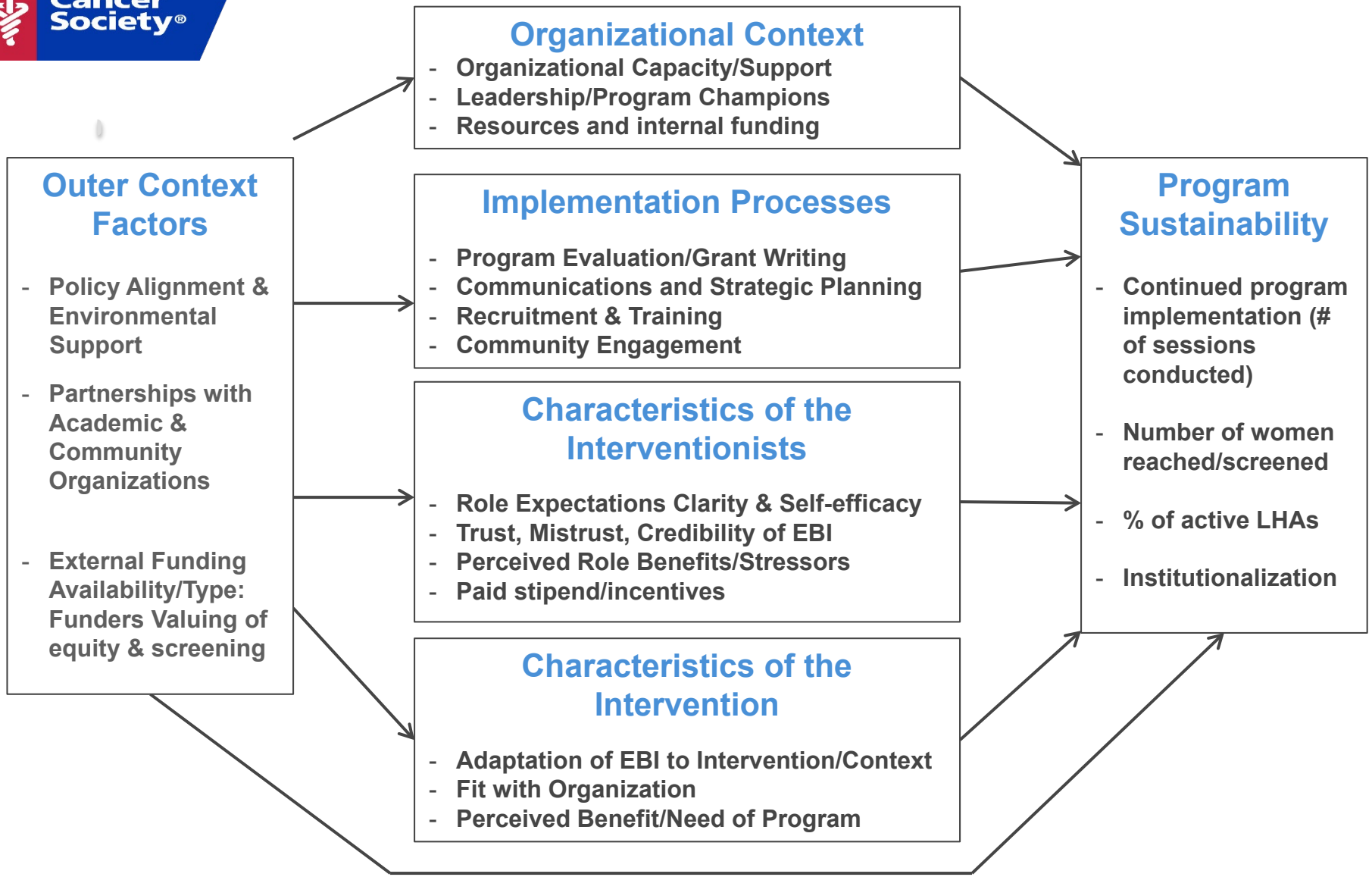
LHA Sustainability Framework



Research Scholar Grant: ACS

Mixed-methods prospective national study examining determinants of sustainability (LHA sustainability framework) for 4 years

- 200 LHAs/leaders
- 16 sites

Specific Aims:

1. What factors and strategies that promote or impede NWP program sustainability? (qualitative interviews; comparative case study)

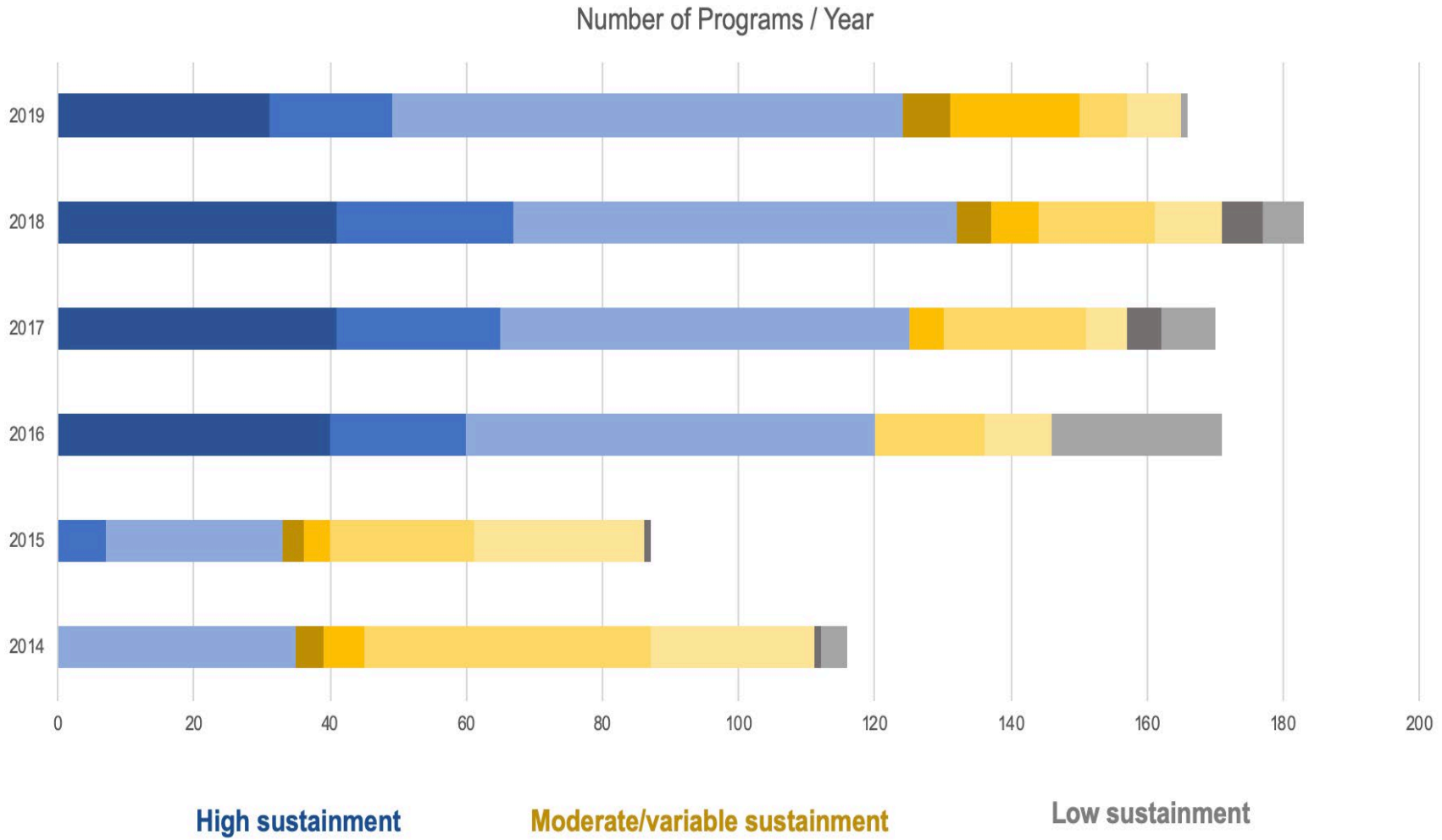
2. Which factors predict the sustainability and impact of the NWP program nationally over time? (prospective survey annually)

3. How has NWP adapted to meet new cancer screening guidelines and identify barriers and facilitators to de-implementation & adaptation of program to reflect updated breast/cervical cancer screening guidelines?

Sustainability Outcomes

1. Continued delivery over time
   - Measured by number of educational programs conducted each year
2. Continued infrastructure to deliver program
   - Measured by total number of LHAs/staff, retention/number who dropout of program, % of active LHAs/staff
3. Continued health impact
   - Measured by the number of women reached and screened
4. Institutionalization
   - Extent to which program is routinized; made into policy, organizational routines, budgets, etc
5. Self-reported sustainability
   - 4 items measuring extent to which program continues

Sustainability Outcome (1): Continued Delivery of Program Over Time



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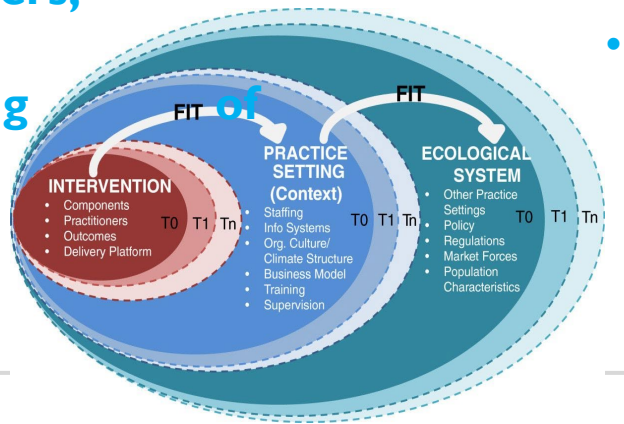
American Cancer Society®

LHA Sustainability Framework

Comparative Case Study: Understanding Dynamic Context & Sustainability Determinants over Time

Outer Context

- **Sustained community & academic/health system partnerships & champions are critical:** facilitate access to organizational resources, funding, space, services
- **Importance of alignment with organizations, funders, policies, systems & their respect/valuing of the program**

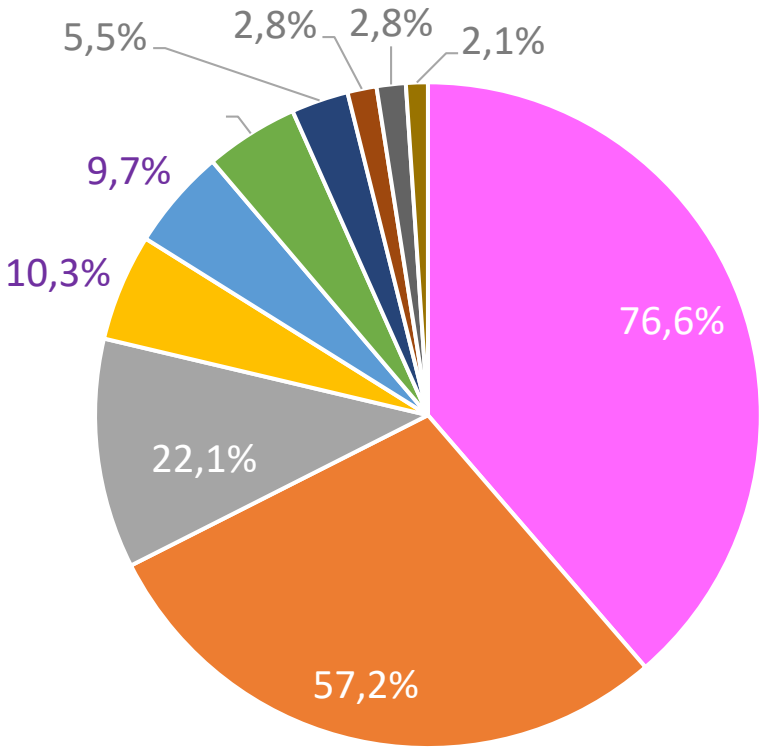


Inner Context

- **Ongoing training & capacity building needed to support sustainability:** e.g. to maximize benefits of LHA role, minimize attrition, provide transferable skills
- **Requires continuous learning, engagement, evaluation**
- **Need ongoing adaptations to program over time** to meet changing community priorities & context (e.g. COVID) & evolving science (e.g. changes in screening guidelines)

Sustainability Challenges: 16 sites nationally (2020)

Which of the following impact your site's ability to be active and sustained?



- COVID-19/Coronavirus restrictions and social distancing/isolation
- Funding and resource challenges
- Staff and volunteer retention and turnover
- Lack of organizational resources or infrastructure
- Lack of physical space
- Lack of community support

Learning from community-led adaptations to sustain the program during COVID

Next steps: Informing Strategies to Promote Sustainability

1. Match sustainability barriers to strategies to address them

3. Evaluate strategies seeking to promote sustainability

2. Engage partners to see which strategies feasible, acceptable, effective

Returning Results to Partners to Build Capacity, Refine Frameworks, & Inform Sustainability Strategies

CAPACITY FOR SUSTAINABILITY

All items scored from
1 (lower capacity for sustainability) to
7 (stronger capacity for sustainability)

Overall, across the domains, the sites report high levels of capacity for sustainability.

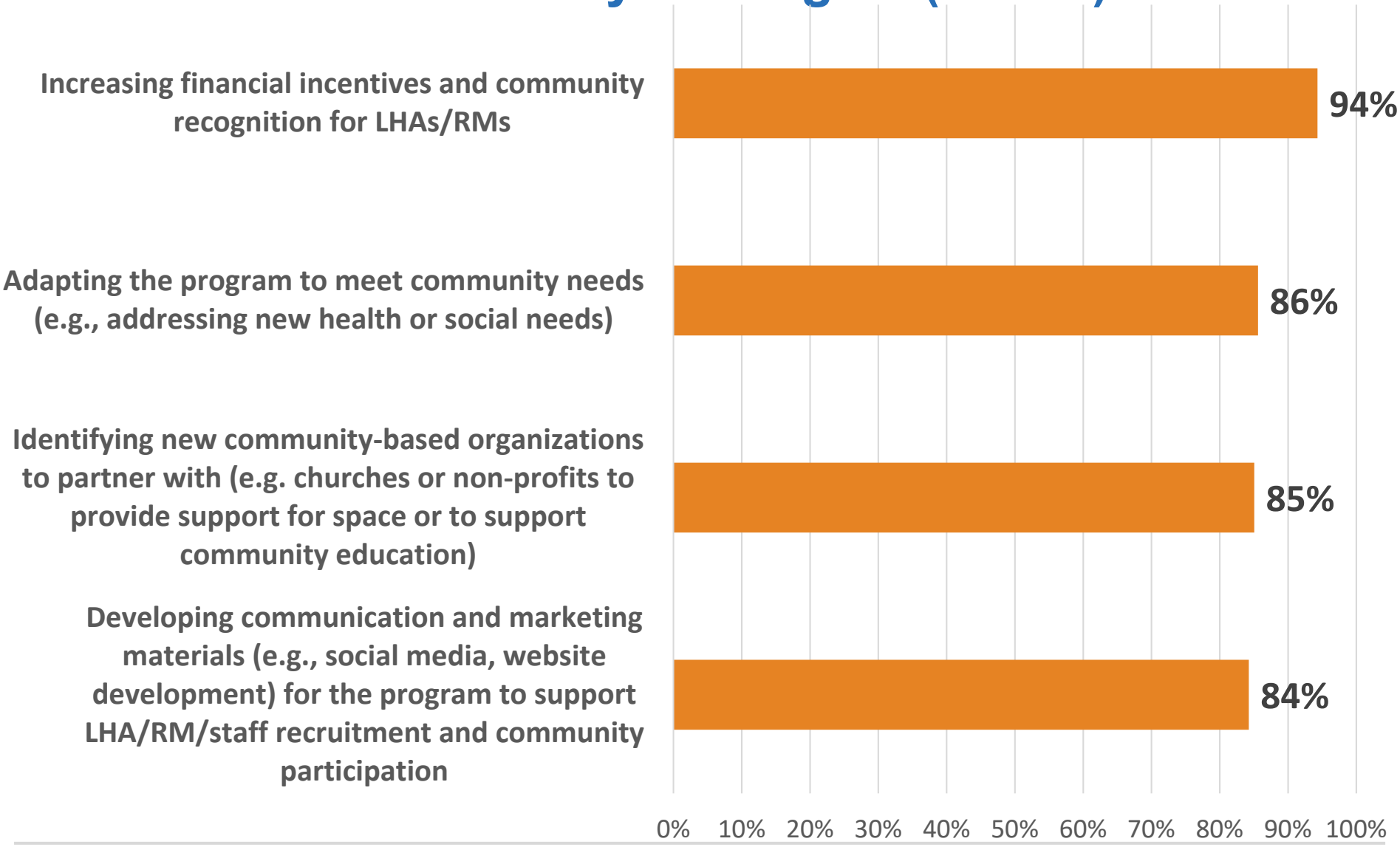
Particularly, the sites are strongest in **program adaptation**.

The greatest need identified was to improve on their **funding.**

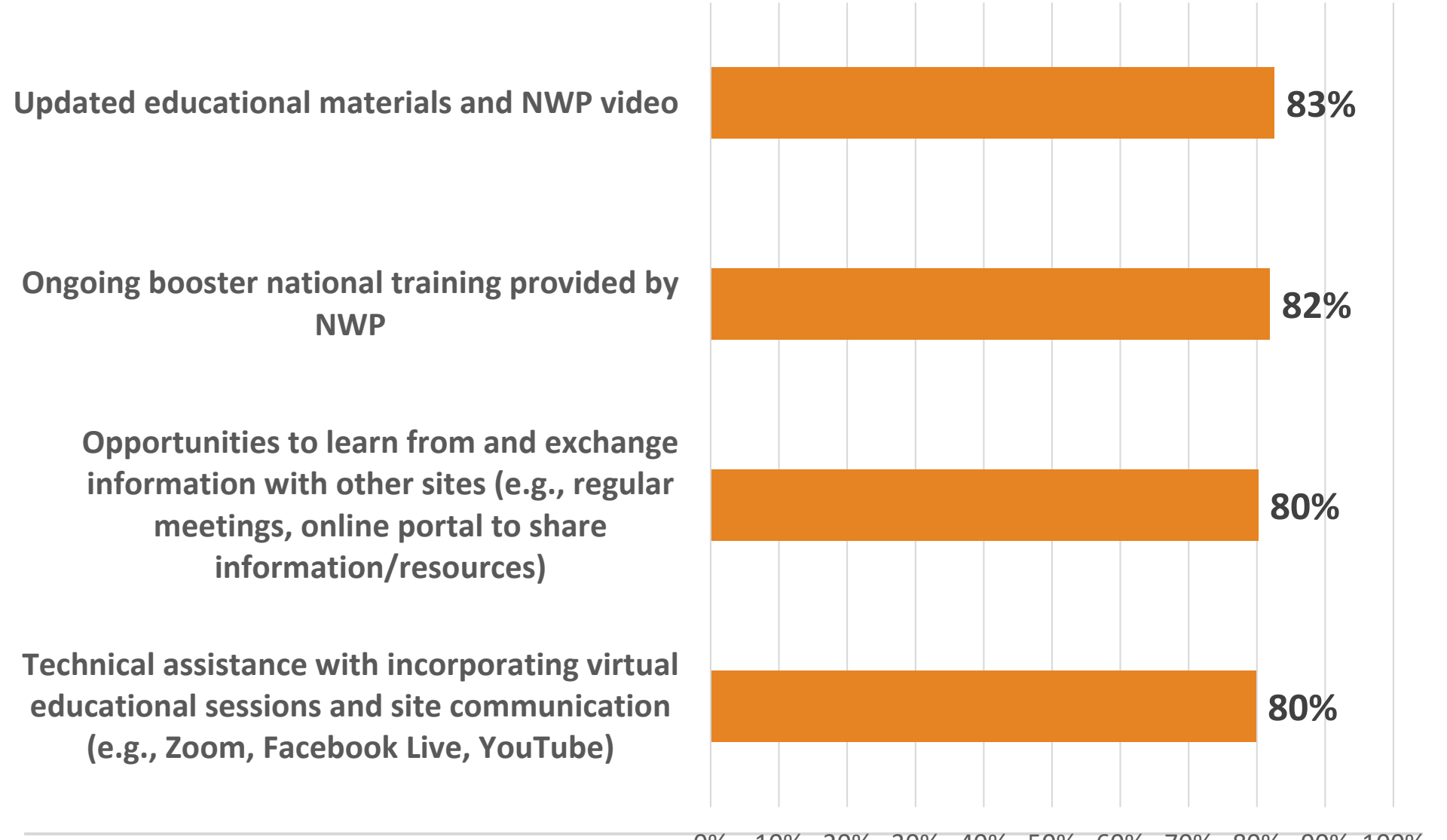
AVERAGE OVERALL SCORE FOR SUSTAINABILITY CAPACITY:

5.10

Stakeholder Input: Effective Priority Sustainability Strategies (n=130)



Stakeholder Input: Effective Priority Sustainability Strategies (n=130)



Emerging Issue: De-implementation in the Context of Sustainability

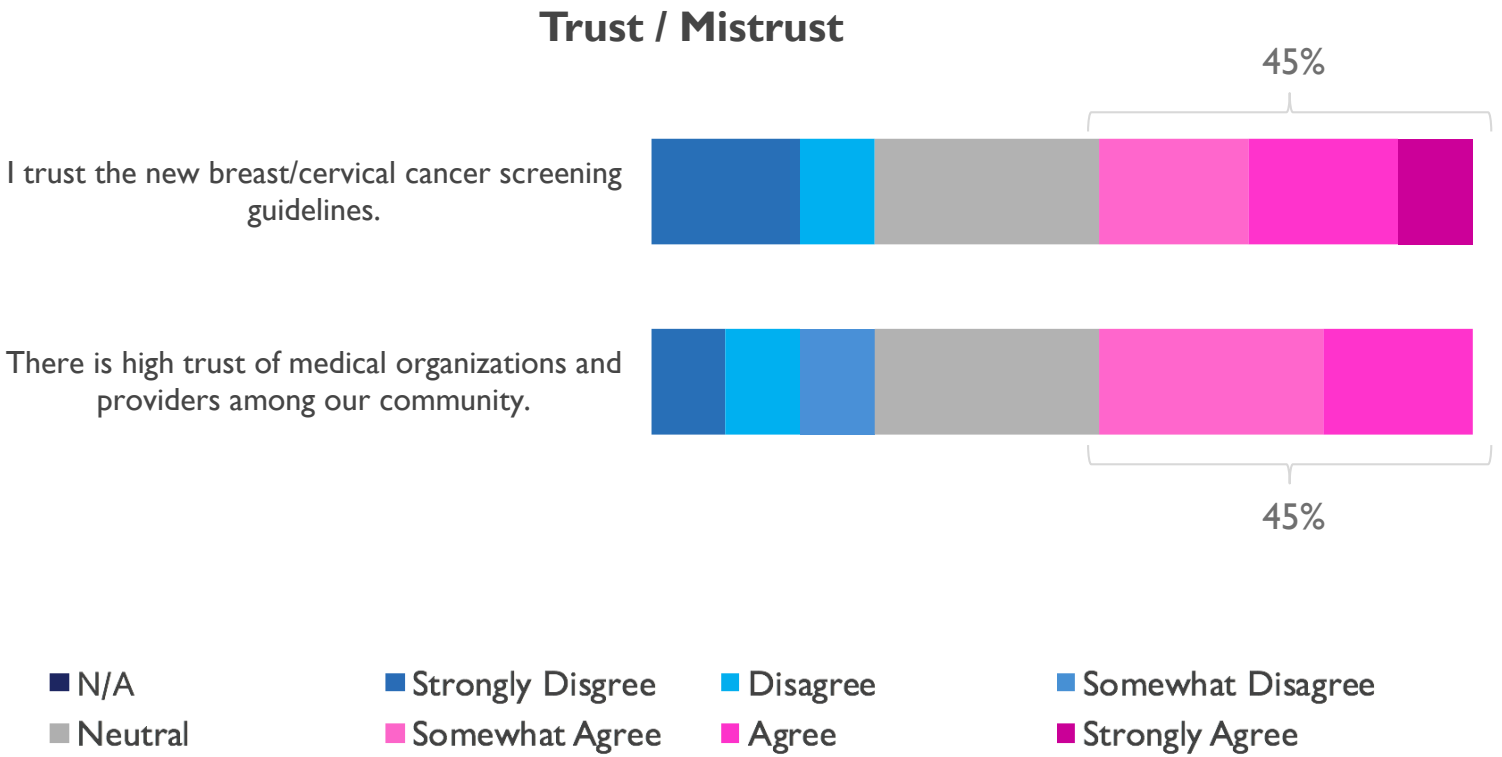
"Reducing (frequency and/or intensity) or stopping the use or delivery of health services or practices that are ineffective, unproven, harmful, overused, inappropriate, and/or low-value by practitioners and delivery systems to patients."

COMMENTARY

Unpacking the complexities of de-implementing inappropriate health interventions

Wynne E. Norton* and David A. Chambers

Why are sites not adapting to new cancer screening guidelines?



Shelton et al., 2019; Society of Behavioral Medicine, Washington DC;
Shelton et al 2020; Ethnicity & Disease

An International Journal on Population Differences in Disease Patterns

Ethnicity & Disease

Ethnicity & Disease is an international journal that exclusively publishes information on the causal and associative relationships in the etiology of common illnesses through the study of ethnic patterns of disease.

Volume 31, Number 1 | Social Determinants of Health and Implementation Science | Winter 2021

Trust and Mistrust in Shaping Adaptation and De-Implementation in the Context of Changing Screening Guidelines

Rachel C. Shelton, ScD, MPH[1]; Laura E. Brotzman, MPH[1]; Detric Johnson, BA[2]; Deborah Erwin, PhD[3]

"It is important to recognize that published guidelines from a historically White medical system may carry little weight compared with the struggle against the social determinants of health and lived social realities of African American women that reflect patterns of structural racism and interpersonal discrimination within the medical system and limited access to timely, quality healthcare" (Shelton et al. 2021)

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Advancing Research on Sustainability

ANNUAL REVIEWS

Annu. Rev. Public Health 2018. 39:18.1–18.22

The *Annual Review of Public Health* is online at publhealth.annualreviews.org

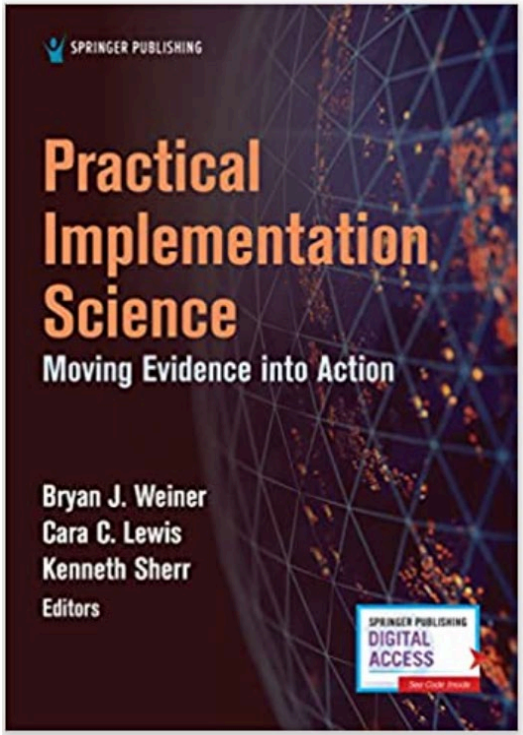
https://doi.org/10.1146/annurev-publhealth-040617-014731

This article is part of a symposium on Implementation Science and Public Health. For a list of other articles in this symposium, see **http://www.annualreviews.org/toc/publhealth/39/1**

Annual Review of Public Health

The Sustainability of Evidence-Based Interventions and Practices in Public Health and Health Care

Rachel C. Shelton,[1] Brittany Rhoades Cooper,[2] and Shannon Wiltsey Stirman[3]



AJPH
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Home » American Journal of Public Health (AJPH) » **February 2019**

Sustaining Evidence-Based Interventions and Policies: Recent Innovations and Future Directions in Implementation Science

Rachel C. Shelton ScD, MPH, and **Matthew Lee** MPH

12

Sustaining Evidence-Based Interventions

Rachel C. Shelton and Nicole Nathan

Moving the field forward…

- **Sustainability as multidimensional & complex construct** allows for dynamic adaptation or de-implementation as appropriate outcomes

- **Conceptual frameworks** critical to guiding and advancing work in this area in understanding and planning for sustainability: Opportunities for empirically testing and refining existing conceptual frameworks & advancing measurement

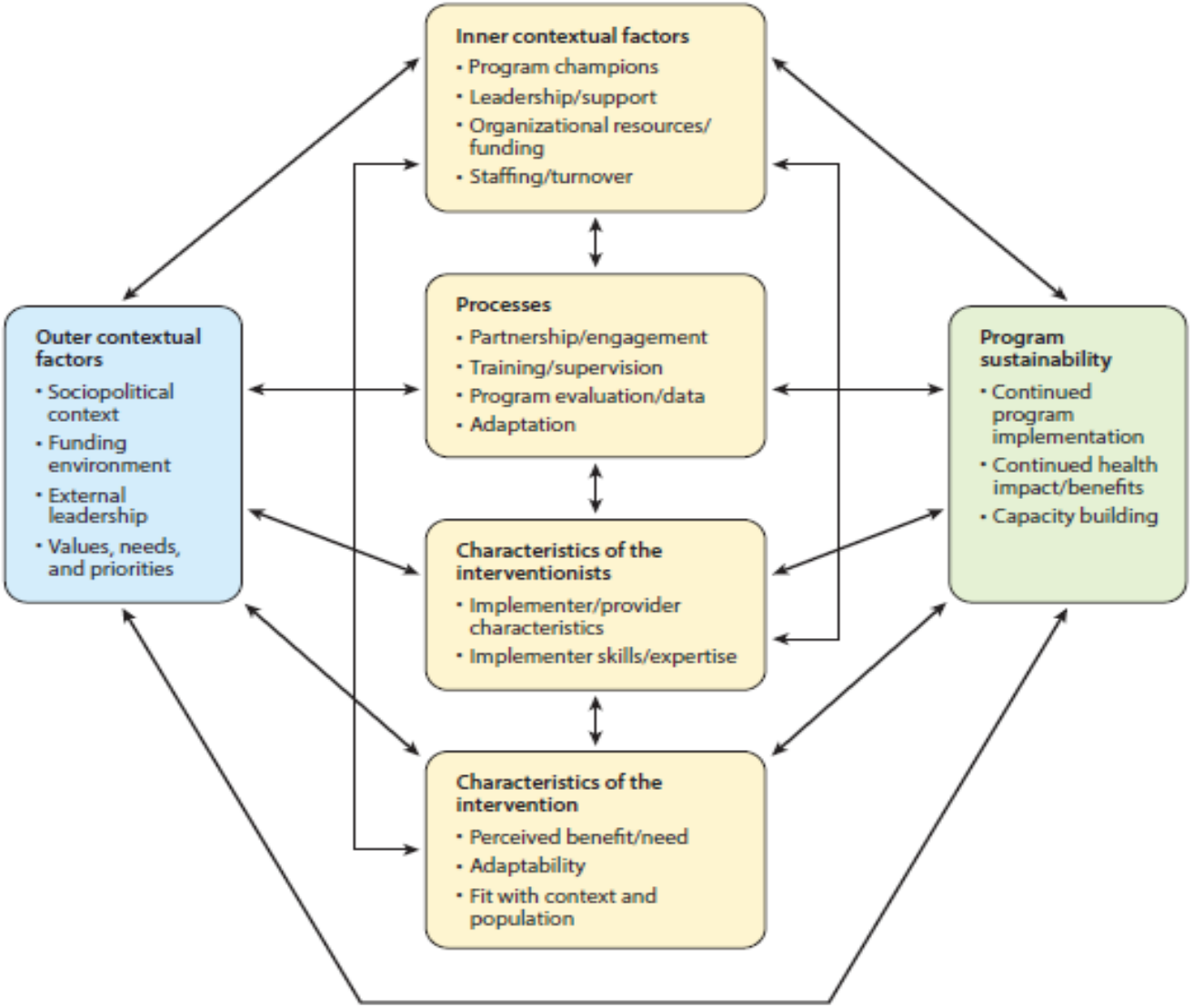
- Developing/testing **sustainability strategies:** Opportunities for testing & building evidence base for effective and equitable sustainability strategies

- **Mixed-methods, multi-site study designs** ideal for studying sustainability; Opportunities for prospective studies, systems science research

- **Advancing understanding of the value of sustainability & making the connection between equity, engagement, & sustainability**

Frameworks for Sustainability Determinants & Tools for Planning for Sustainability

Integrated Sustainability Framework



Shelton, R. C., Cooper, B. R., & Stirman, S. W. (2018). The Sustainability of Evidence-Based Interventions and Practices in Public Health and Health Care. *Annual Review of Public Health, 39(1), null. doi:10.1146/annurev-publhealth-040617-014731 (see guiding questions in Practical Implementation Science textbook)*

Table 1 Emerging factors associated with sustainability across multiple settings and contexts

	Community	School	Clinical/social service	Global	Whole systems	Coalitions
Outer context						
Policy and legislation	X		X			
Sociopolitical context	X		X	X	X	
Funding environment	X	X	X	X	X	X
Leadership			X		X	X
Values, priorities, needs			X	X	X	
Community ownership				X		
Inner context						
Funding/resources	X	X	X	X		
Leadership/support	X	X	X			
Climate/culture			X			
Staffing/turnover	X	X	X		X	
Structural characteristics		X			X	
Capacity	X			X		
Champion	X		X		X	
Policies (alignment)		X			X	
Mission				X		

Shelton, R. C., Cooper, B. R., & Stirman, S. W. (2018). The Sustainability of Evidence-Based Interventions and Practices in Public Health and Health Care. *Annual Review of Public Health, 39(1), null. doi:10.1146/annurev-publhealth-040617-014731*

	Community	School	Clinical/social service	Global	Whole systems	Coalitions
Intervention characteristics						
Adaptability	X		X	X	X	
Fit with population and context	X	X	X		X	
Benefits/need	X		X	X		X
Burden/complexity	X					
Trialability						X
Cost				X		
Processes						
Partnership/engagement	X		X	X		X
Training/support/supervision	X	X	X			
Fidelity		X	X			
Adaptation			X			
Planning	X					X
Team/board functioning						X
Program evaluation/data	X	X	X		X	X
Communication	X		X			
Technical assistance				X		
Capacity building	X			X		
Implementer and population characteristics						
Provider/implementer characteristics	X		X	X		
Implementation skills/expertise	X			X		X
Implementer attitudes	X					
Implementer motivation	X					
Population characteristics				X		

Shelton, R. C., Cooper, B. R., & Stirman, S. W. (2018). The Sustainability of Evidence-Based Interventions and Practices in Public Health and Health Care. *Annual Review of Public Health, 39(1), null. doi:10.1146/annurev-publhealth-040617-014731*

School

Clinical

Community

Coalitions

Whole system

Global

Systematic review | Open Access | Published: 23 March 2016

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Toward the sustainability of health interventions implemented in sub-Saharan Africa: a systematic review and conceptual framework

Juliet Iwelunmor ✉, Sarah Blackstone, Dorice Veira, Ucheoma Nwaozuru, Collins Airhihenbuwa, Davison Munodawafa, Ezekiel Kalipeni, Antar Jutal, Donna Shelley & Gbenga Ogedegbe

Barriers and facilitators influencing the sustainment of health behaviour interventions in schools and childcare services: a systematic review

Adam Shoesmith ✉, Alix Hall, Luke Wolfenden, Rachel C. Shelton, Byron J. Powell, Hannah Brown, Sam McCrabb, Rachel Sutherland, Serene Yoong, Cassandra Lane, Debbie Booth & Nicole Nathan

Implementation Science **16**, Article number: 62 (2021) | Cite this article

CONDUCTING A SUSTAINABILITY ASSESSMENT, INFORMED BY THE INTEGRATED SUSTAINABILITY FRAMEWORK *(Adapted from Shelton RC & Nathan N 2021; Chapter on Sustaining Evidence-Based Interventions in 'Practical Implementation Science')*

Domain	Questions to Consider
Outer/Policy Context	- What **policies, regulations, and social norms** are in place that may have implications for sustainability? - What's the **broader funding environment** like and are there external funds that could help sustain the EBI? - Are there **external partnerships (with government agencies, healthcare systems, community-based organizations)** that can help bring resources, support, and commitment to sustain the EBI? - How does EBI align with **national, state, local priorities**?
Inner/Organizational Context	- Are there **program champions** (community and organizational) who can help influence sustained delivery of the EBI? - Does the EBI have **support from organizational leadership**? - Within the organization, is there **organizational infrastructure** (time, financial resources, space) to support the EBI? How 'ready' is the organization? - How are **stakeholders continually engaged** related to EBI delivery?
Implementation Processes	- Are there processes in place to support the **recruitment and retention** of staff involved with EBI delivery? - Are there **supervision and training** processes in place to support EBI delivery among staff over time?

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Lots of Unanswered Questions

- Do same factors that influence **implementation** matter for **sustainability**? How does **adaptation** influence sustainability?
- Do different factors matter for **different types of interventions**? **Settings? Populations? Health topics?**
  - Health equity focus
- Are all factors **equally important** or do some factors matter more? Can some factors **compensate** for other factors?
- What is the **return on investment** and **value** of sustainability?

Sustained Implementation of Evidence-based Programs in Disadvantaged Communities: A Conceptual Framework of Supporting Factors.

Lauren M. Hodge, K. Turner • Published 1 September 2016 • Sociology, Medicine • American journal of community psychology

Intervention Type	Sustainability Hypotheses
Interventions implemented by individual providers	• High rates of sustainability compared with other intervention types, if implemented appropriately before sustainability assessed • Strongly influenced by whether payment for the individual's delivery is included within normal streams of financial support (e.g. fee-for-service medicine) • Strongly influenced by the individual's motivation to continue the new practice
Interventions requiring coordination among multiple staff	• Strongly influenced by factors within the organizational context (e.g. administrative support, project champions, congruence with organization's underlying mission and culture, fit with organizational procedures and programs) • Strongly influenced by availability of continued financial resources for supporting staff and administrators involved • Enhanced by external training and technical assistance to organizational leaders for organizational processes and planning required
New policies, procedures, and technologies	• Likely to have high rates of sustainability once fully implemented • Influenced by continued efforts to monitor and enforce the intended new policy • At least some continued use is likely - after some new technologies are in place and fully implemented, it may be impossible to revert to the previous system • Inadequate implementation or lack of technical support may hamper effectiveness of new technology
Capacity or infrastructure building	• Depends strongly on continued presence of those trained during capacity building (e.g. low turnover) • Does not depend as heavily on new sources of financial support • Efforts depend strongly on the political and financial climates affecting organization • Capacity or infrastructure building that focuses on changes in technology or standard operating procedures more likely to be sustained after full implementation than capacity building that focuses on training individuals
Collaborative partnerships or coalitions	• Formal coalitions or partnerships developed during a funded initiative are more likely to be sustained than the activities delivered during the funded period, if partnership members are committed • Sustaining coalitions or partnerships beyond the initial funded period may enable them to develop new activities, win new grants, or otherwise continue to address the focus problem area • May not require new external funding sources; coalition leadership and partners' perceptions of the value of continued affiliation are more influential than additional external funding
Broad-scale system change	• Likely to require a long period of continuing and diverse efforts to achieve the desired outcomes • Likely to require continued funding for a long time (e.g. 10-20 years), rather than typical 3-5-year grant period • Environmental contexts are likely to be especially influential for sustaining changes in a broader health system

Scheirer M.A. (2013). Linking sustainability research to intervention types. *American journal of public health*, *103*(4), e73-80.

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Sustainability Determinants & Capacity

Program Sustainability Framework and Domain Descriptions V2

ENVIRONMENTAL SUPPORT
Having a supportive internal and external climate for your program

FUNDING STABILITY
Establishing a consistent financial base for your program

PARTNERSHIPS
Cultivating connections between your program and its stakeholders

ORGANIZATIONAL CAPACITY
Having the internal support and resources needed to effectively manage your program

PROGRAM EVALUATION
Assessing your program to inform planning and document results

PROGRAM ADAPTATION
Taking actions that adapt your program to ensure its ongoing effectiveness

COMMUNICATIONS
Strategic communication with stakeholders and the public about your program

STRATEGIC PLANNING
Using processes that guide your program's direction, goals, and strategies

Center for Public Health Systems Science
GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK

Measured using adapted 40-item **Program Sustainability Assessment Tool (PSAT) and newly developed Clinical Sustainability Assessment Tool (CSAT)**

- **sustaintool.org (Doug Luke, Washington University; Luke et al., 2014)**

Clinical Sustainability Assessment Tool

What is clinical sustainability capacity?

We define clinical sustainability capacity as the ability of an organization to maintain structured clinical care practices over time and to evolve and adapt these practices in response to new information.

1. Understand

Understand the factors that influence a clinical practice's capacity for sustainability.

2. Assess

Use the Clinical Sustainability Assessment Tool to assess your practice's capacity for sustainability.

3. Review

View results from your assessment as a Sustainability report.

4. Plan

Develop an Action Plan to increase the likelihood of sustainability.

- **sustaintool.org (Doug Luke, Washington University; Luke et al., 2014)**

Advancing Measurement & Tracking of Sustainability Indicators Over Time

Complexity of Sustainability Outcomes

Continued delivery w/fidelity to original EBI

Adaptation of EBI to fit changing contexts, evidence, needs

De-implementation

Continued health benefits, including impact on health equity

Methodology | Open Access | Published: 03 September 2020

Measurement of sustainment of prevention programs and initiatives: the sustainment measurement system scale

Lawrence A. Palinkas ✉, Chih-Ping Chou, Suzanne E. Spear, Sapna J. Mendon, Juan Villamar & C. Hendricks Brown

Implementation Science **15**, Article number: 71 (2020) | Cite this article

Research | Open Access | Published: 05 January 2022

Moullin *et al. Implementation Science Communications* (2020) 1:76
https://doi.org/10.1186/s43058-020-00068-8

Implementa
Communica

Rates of sustainment in the Universal Stages of Implementation Completion

Dylan Randall Wong, Holle Schaper & Lisa Saldana ✉

Implementation Science Communications **3**, Article number: 2 (2022) | Cite this article

RESEARCH

Advancing the pragmatic measurement of sustainment: a narrative review of measures

Joanna C. Moullin[1,2], Marisa Sklar[2,3,4], Amy Green[2,
Kendal Reeder[2,3] and Gregory A. Aarons[2,3,4*]

Research | Open Access | Published: 30 August 2021

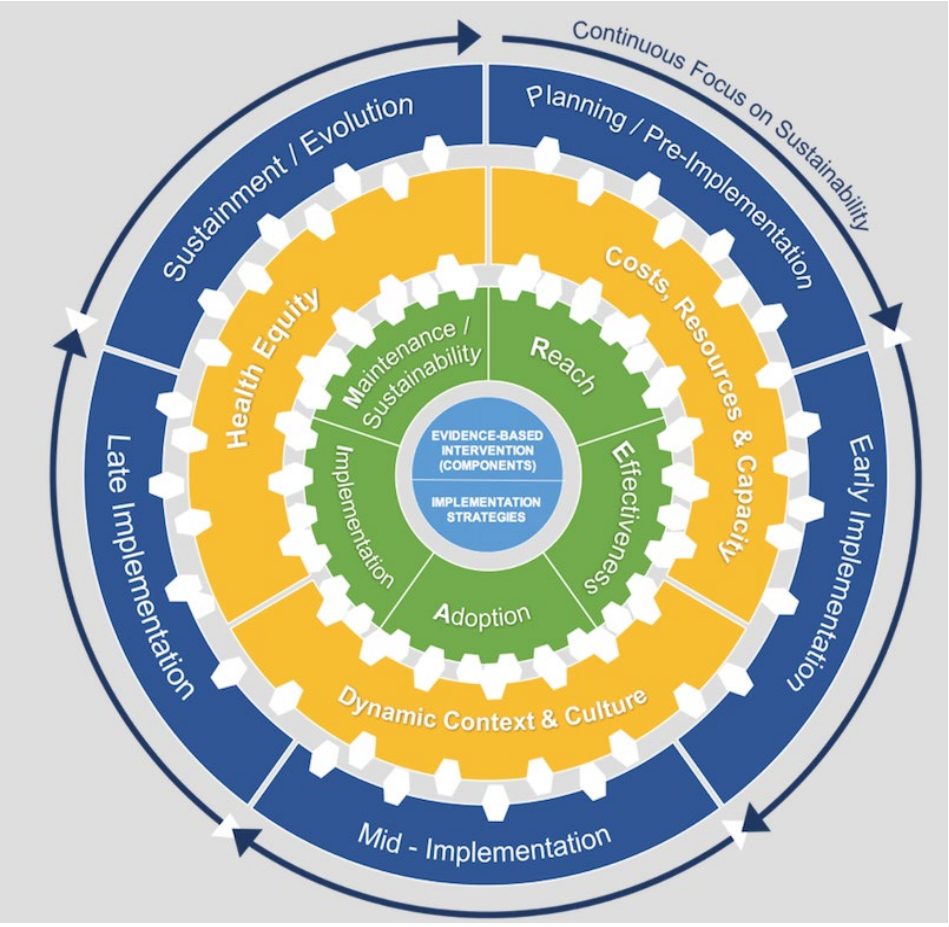
Provider REport of Sustainment Scale (PRESS): development and validation of a brief measure of inner context sustainment

Joanna C. Moullin, Marisa Sklar, Mark G. Ehrhart, Amy Green & Gregory A. Aarons ✉

Implementation Science **16**, Article number: 86 (2021) | Cite this article

An Extension of RE-AIM to Enhance Sustainability: Addressing Dynamic Context and Promoting Health Equity Over Time

Rachel C. Shelton[1*], David A. Chambers[2] and Russell E. Glasgow[3,4]

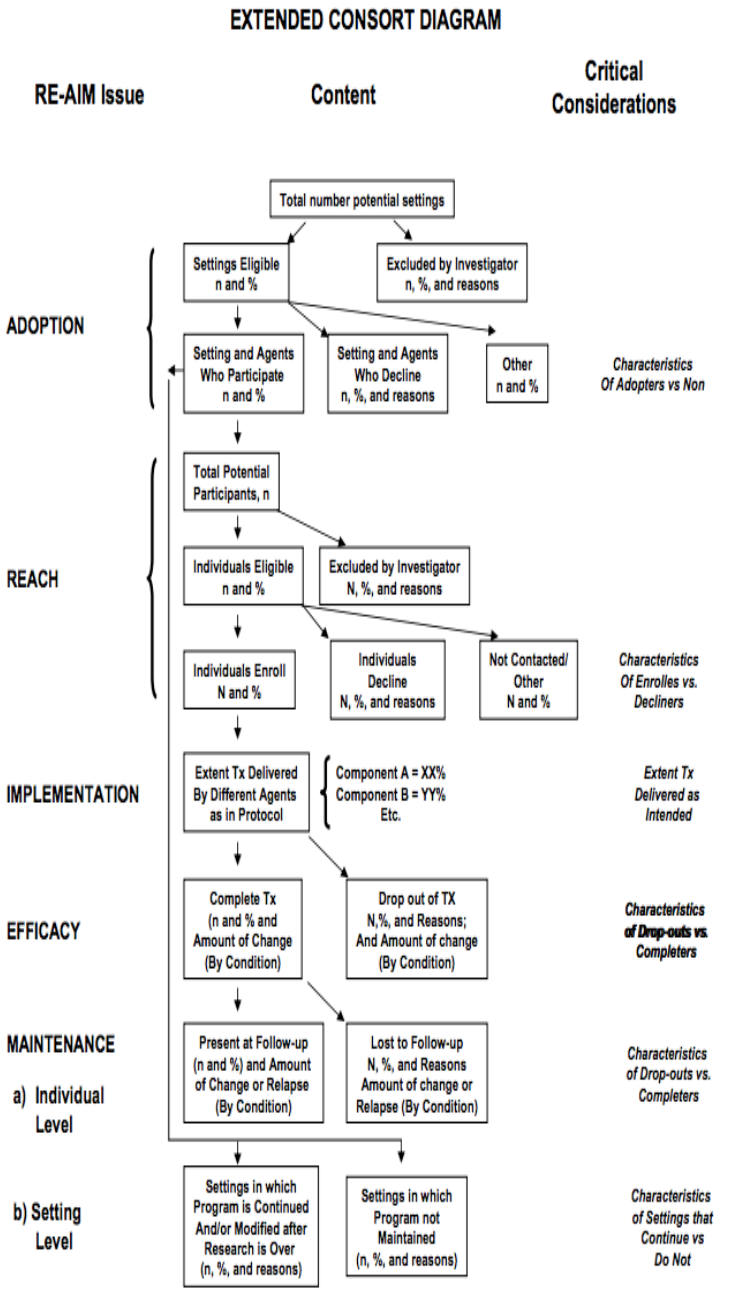


1) Extending "Maintenance" to reflect longer-term, dynamic conceptualizations of sustainability

2) Planned adaptations & evolutions across life cycle of EBIs & strategies needed in response to changing Needs, Context, Evidence

3) Mixed-methods & iterative application of RE-AIM to guide adaptations & enhance sustainability w/partners (how & why)

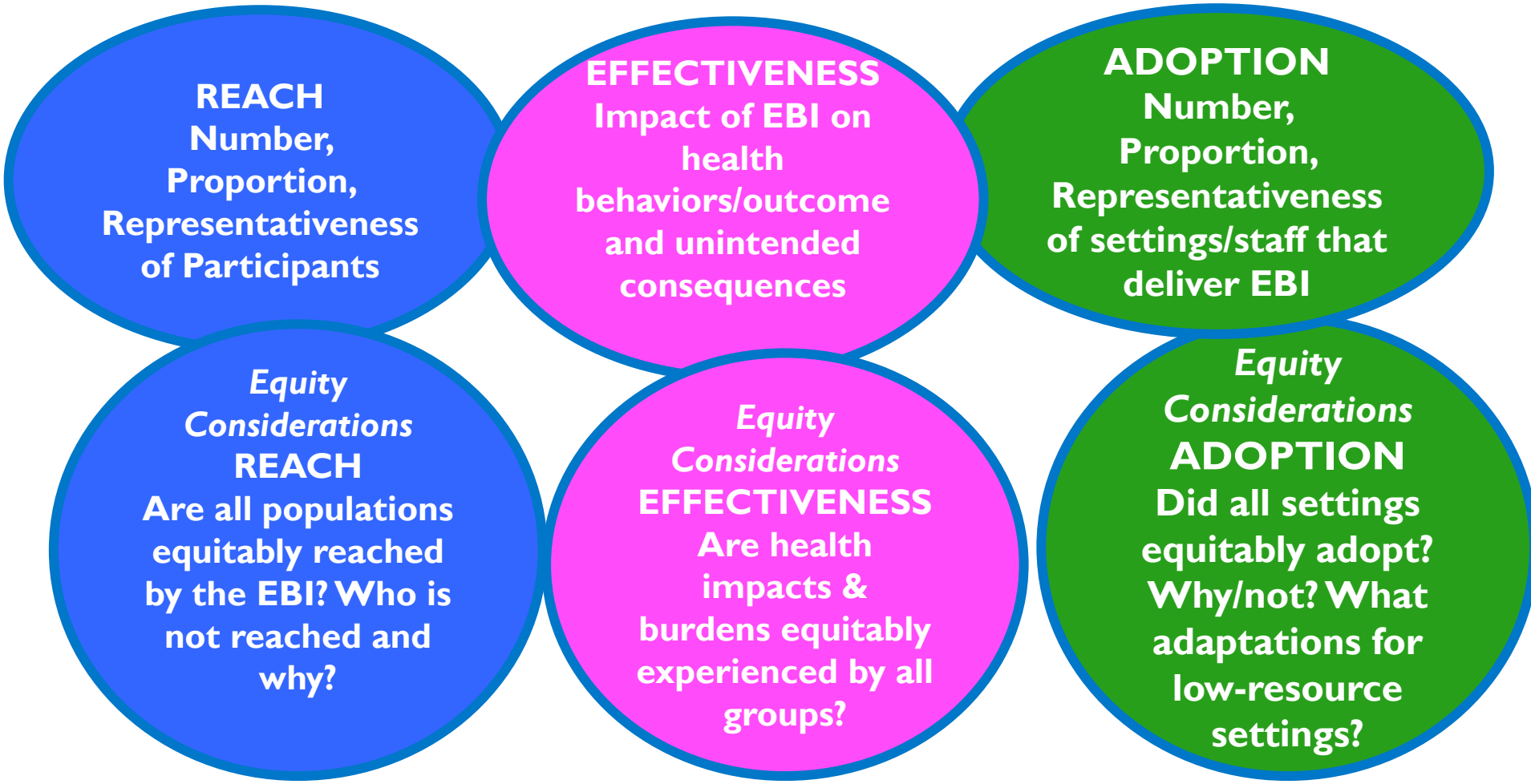
4) Attention to equity & costs/value for stakeholders across RE-AIM*:* considering reach, representation, equity at multiple levels



Bringing Transparency & Equity Lens to Extended Consort Diagram: RE-AIM

- Identify key social dimensions where health inequities exist
- Transparency: where/when inequities arise or are exacerbated across RE-AIM domains (health inequities & inequitable implementation)
- Accountability: Inform planning, adaptations, evaluation (enhancing equitable implementation & sustainability)

Equity Lens for RE-AIM
Accountability & Input: D&I Indicators/Outcomes



Example: Equity Lens for RE-AIM (D&I Indicators/Outcomes)

IMPLEMENTATION
Continued initial delivery of EBI at staff/setting levels; cost; adaptations

MAINTENANCE
Continued health impact and continued delivery of EBI over time

Equity Considerations
IMPLEMENTATION
Were EBI/strategies equitably delivered across settings & staff? Why? Adaptations to strategies to promote equity?

Equity Considerations
MAINTENANCE
What populations & settings are/aren't reached & receive health benefits over time? Why? How can low-resource settings sustain?

Opportunities for Systems Science & Sustainability

Social Science & Medicine 220 (2019) 81–101

Contents lists available at ScienceDirect

Social Science & Medicine

journal homepage: www.elsevier.com/locate/socscimed

Review article

Use of social network analysis in the development, dissemination, implementation, and sustainability of health behavior interventions for adults: A systematic review

Rachel C. Shelton[a,*], Matthew Lee[a], Laura E. Brotzman[a], Danielle M. Crookes[b], Lina Jandorf[c], Deborah Erwin[d], Elizabeth A. Gage-Bouchard[d]

Advancing Focus on Developing & Testing Sustainability Strategies

*Stay Tuned!

Systematic review | Open Access | Published: 06 June 2019

Evidence-based intervention sustainability strategies: a systematic review

Maji Hailemariam ✉, Tatiana Bustos, Barrett Montgomery, Rolando Barajas, Luther B. Evans & Amy Drahota

Implementation Science **14**, Article number: 57 (2019) | Cite this article

5642 Accesses | **9** Citations | **28** Altmetric | Metrics

Examples of Sustainability Strategies:

- Funding/contracting EBI for continued use
- Maintenance of workforce skills (booster training, ongoing feedback)
- System adaptation to promote fit with organization over time
- Stakeholder prioritization and continued support of leadership
- Maintenance of staff buy in and benefits
- Planning for staff attrition/turnover (building implemenentation teams vs. individual champions)

Pragmatic Considerations in Research on Sustainability

What are you trying to sustain and what constitutes sustainability of EBI?

- Sustained use of intervention with fidelity? Continued delivery with adaptations? Sustained partnerships? Maintained benefits/health equity?
- Work with partners to identify EBI components & priorities

How/when are you measuring & tracking sustainability: Establish timeframes

- When is sustainability assessed? 1 year? 2 or more years? Ongoing?
- Pragmatic indicators; work with stakeholders (feasible, time, resources)

How are you understanding & planning for sustainability from beginning?

- Work from existing determinant frameworks and tools (PSAT; CSAT; Integrated Sustainability Framework) to understand barriers and facilitators; consider how to match onto strategies to address
- Accountability in tracking sustainability & when/where inequities are exacerbated over time & refinements needed (RE-AIM)

Our Evidence Base Matters for Health Equity & Sustainability

Debate | Open Access | Published: 12 April 2022

Revisiting concepts of evidence in implementation science

Ross C. Brownson, Rachel C. Shelton, Elvin H. Geng & Russell E. Glasgow

Implementation Science **17**, Article number: 26 (2022) | Cite this article

Annual Review of Public Health

Designing for Dissemination and Sustainability to Promote Equitable Impacts on Health

Bethany M. Kwan,[1] Ross C. Brownson,[2,3] Russell E. Glasgow,[1] Elaine H. Morrato,[4] and Douglas A. Luke[5]

BMC Health Services Research

Transcreation: an implementation science framework for community-engaged behavioral interventions to reduce health disparities

Anna María Nápoles and Anita L. Stewart

Cancer causes & control : CCC

Author Manuscript HHS Public Access

Participatory implementation science to increase the impact of evidence-based cancer prevention and control

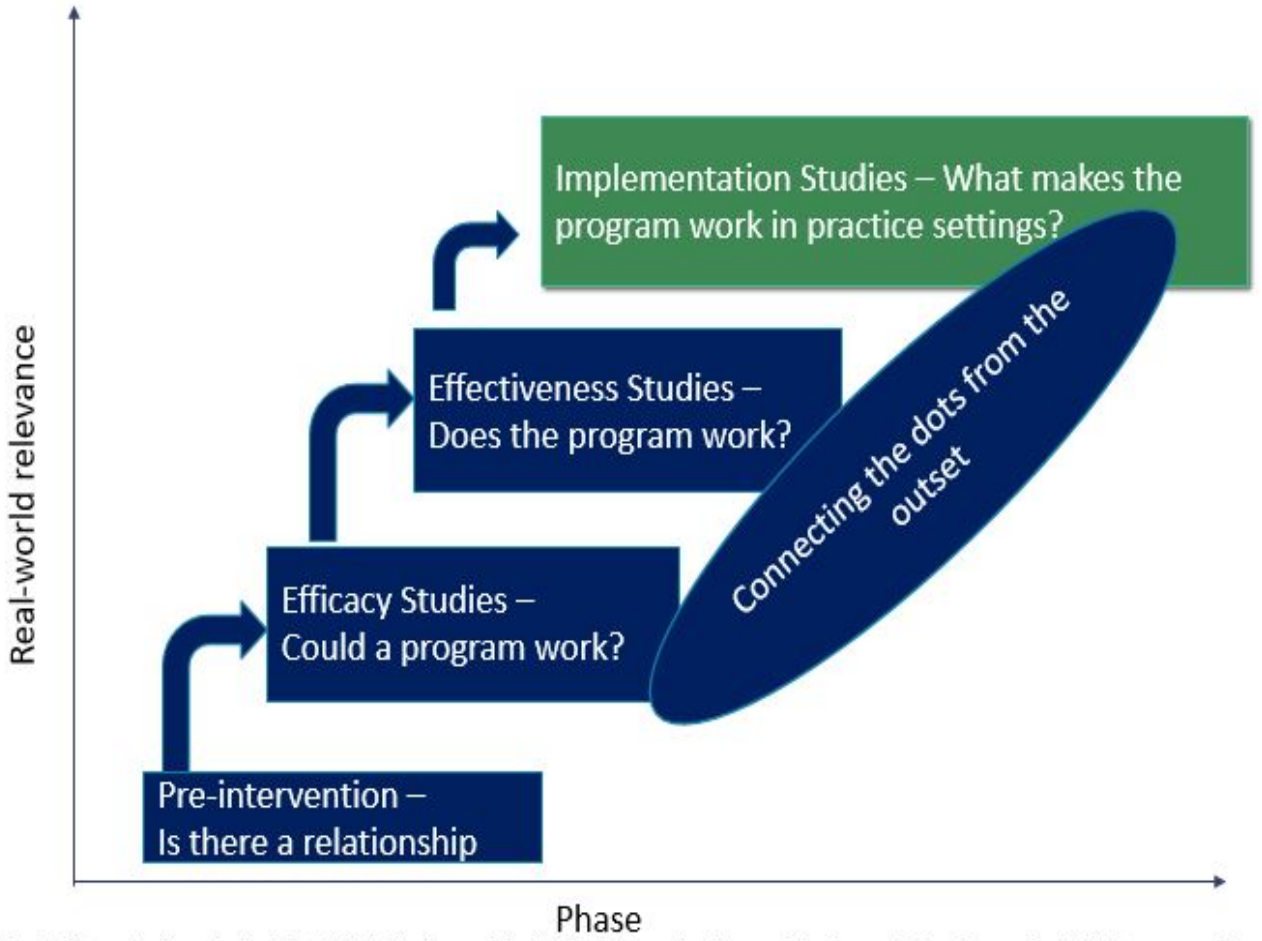
Shoba Ramanadhan, ScD, MPH, Melinda M. Davis, PhD, [...], and Ross C. Brownson, PhD

CLINICAL PSYCHOLOGY SCIENCE AND PRACTICE

Literature Review

User-Centered Design for Psychosocial Intervention Development and Implementation

Aaron R. Lyon, Kelly Koerner



Adapted from Landsverk, J. et al. (2018). Design and Analysis in Dissemination and Implementation Research. In R. Brownson, G. Colditz & E. Proctor (Eds.), *Dissemination and Implementation Research in Health* (pp. 201-228). New York: Oxford University Press. & Simon, P., & Olson, R. (2014). Building capacity to reduce bullying. Washington DC: Institute of Medicine / National Research Council.

Ramanadhan, S., et al. (2018). Participatory Implementation Science. *Cancer Causes & Control*, *29*(3), 363-369. & Yonas, M.A., et al. (2006). *Journal of Urban Health, 83*(6), 1004-1012; Wallerstein & Duran 2010 AJPH; Slide Credit: Dr. Shoba Ramanadhan

Many Gaps & Opportunities to Advance Work on Sustainability in Research & Practice

Thank you!

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The Project Directors, Coordinators, LHAs, and Role Models from the National Witness Project who contributed their time and energy to this study and partnership over past 12 years

Funding: R03 grant from the National Cancer Institute (5R03CA150543-03, "Serving as a Lay Health Advisor: The Impact on Self and Community")

Provost's Award, Columbia University: Understanding De-implementation of Cancer Screening

American Cancer Society Research Scholar Grant for Health Equity: Sustainability of LHA Programs to Address Cancer Disparities

NCI: R011R01CA255382-01 (Shelton, Tehranifar, Moise): De-implementation of Overuse of Mammography Screening in Older Racially and Ethnically Diverse Women

P50CA244690 Penn Implementation Science Center (PIs: Beidas, Beckelman, Schnoll)

Huge Thanks!
Questions & Discussion

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