Developing a meta-framework for the sustainability of implemented practices

Alekhya Mascarenhas[1], Julia E. Moore[1], Julie Bain[1], Jamie Park[1], Sharon E. Straus[1,2]
[1] Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Ontario; [2] Department of Medicine, University of Toronto, Toronto, Ontario

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Background

Sustainability is described as "one of the least understood and most vexing issues" [1] and will be a key focus for the next decade of implementation research. There is limited evidence on factors that influence sustainability [2-4]. Determinant frameworks [5] can be used to evaluate sustainability efforts and demystify the key ingredients needed to sustain outcomes. There are multiple sustainability frameworks [6-8], each with a different set of determinants, making it challenging for implementation researchers to discern which one is most appropriate for their work.

Methods

We developed a sustainability meta-framework using a three-step data abstraction process and a concept-mapping approach [9].

Abstracting sustainability constructs

1) We searched for knowledge syntheses on the sustainability of healthcare interventions using a validated filter in PubMed Clinical Queries.
2) References for primary studies from relevant knowledge syntheses were identified and two analysts independently screened titles and abstracts of the references to identify those that referred to implementation or sustainability.
3) Two analysts independently abstracted data on sustainability frameworks from eligible primary studies including sustainability constructs mentioned in implementation frameworks.

Concept-mapping

1) We used purposive sampling [10] to recruit implementation scientists such as, authors of sustainability knowledge syntheses or frameworks.
2) To facilitate the sorting process, two analysts pre-sorted 158 constructs into 5 domains: system, implementation setting, implementation team, intervention, and steps to plan for sustainability.
3) Implementation scientists who had published on sustainability used Qualtrics to sort the list of sustainability constructs into clusters within each domain.
4) We did a multidimensional scaling (MDS) analysis on the sorted data.
5) The research team achieved consensus about various options for cluster solutions under each domain.

Findings

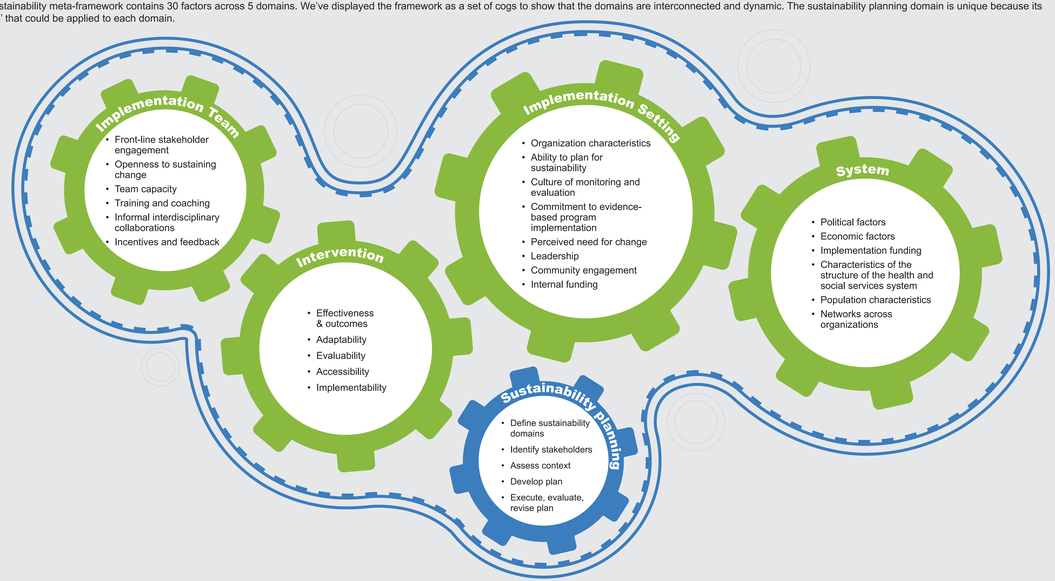
Abstracting sustainability constructs

We found 4 knowledge syntheses through PubMed Clinical Queries. Analysts scanned 356 references and abstracted 23 articles that referred to implementation or sustainability frameworks. Analysts abstracted 158 sustainability constructs from identified frameworks. Duplicate constructs were collapsed into one construct.

Concept-mapping

12 scientists participated in our study. MDS analysis of the sort data yielded a good fit (stress values of 0.23 to 0.28). The research team agreed upon a list of 30 clusters across the 5 domains: 6 system clusters, 8 implementation setting clusters, 6 implementation team clusters, 5 intervention clusters, and 5 clusters under steps to plan for sustainability.

Figure 1. Our sustainability meta-framework contains 30 factors across 5 domains. We've displayed the framework as a set of cogs to show that the domains are interconnected and dynamic. The sustainability planning domain is unique because its factors are 'steps' that could be applied to each domain.



Limitations

First, our search for knowledge syntheses was only performed in one healthcare database. There may be additional frameworks and sustainability constructs available from knowledge syntheses that we missed. Second, the inclusion of more scientists might have changed the results of the sorting exercise. However, a minimum sample size of 10 is recommended [9].

Implications for D&I Research

Our meta-framework advances the field by providing a consolidated list of factors that may influence sustainability. This meta-framework can be used to plan for sustainability and evaluate attempts to achieve sustainability. Our next steps will involve refining this framework through a more systematic review of the literature and testing our constructs with implementation practitioners.

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Contact information:
Alekhya Mascarenhas
Knowledge Translation Program, Li Ka Shing Knowledge Institute
mascarenhasa@smh.ca | 416 864 6060 ext. 77327