Process evaluations in complex social and health interventions

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PriMHE: Programme in the Methods of Health Economics

21 March 2023

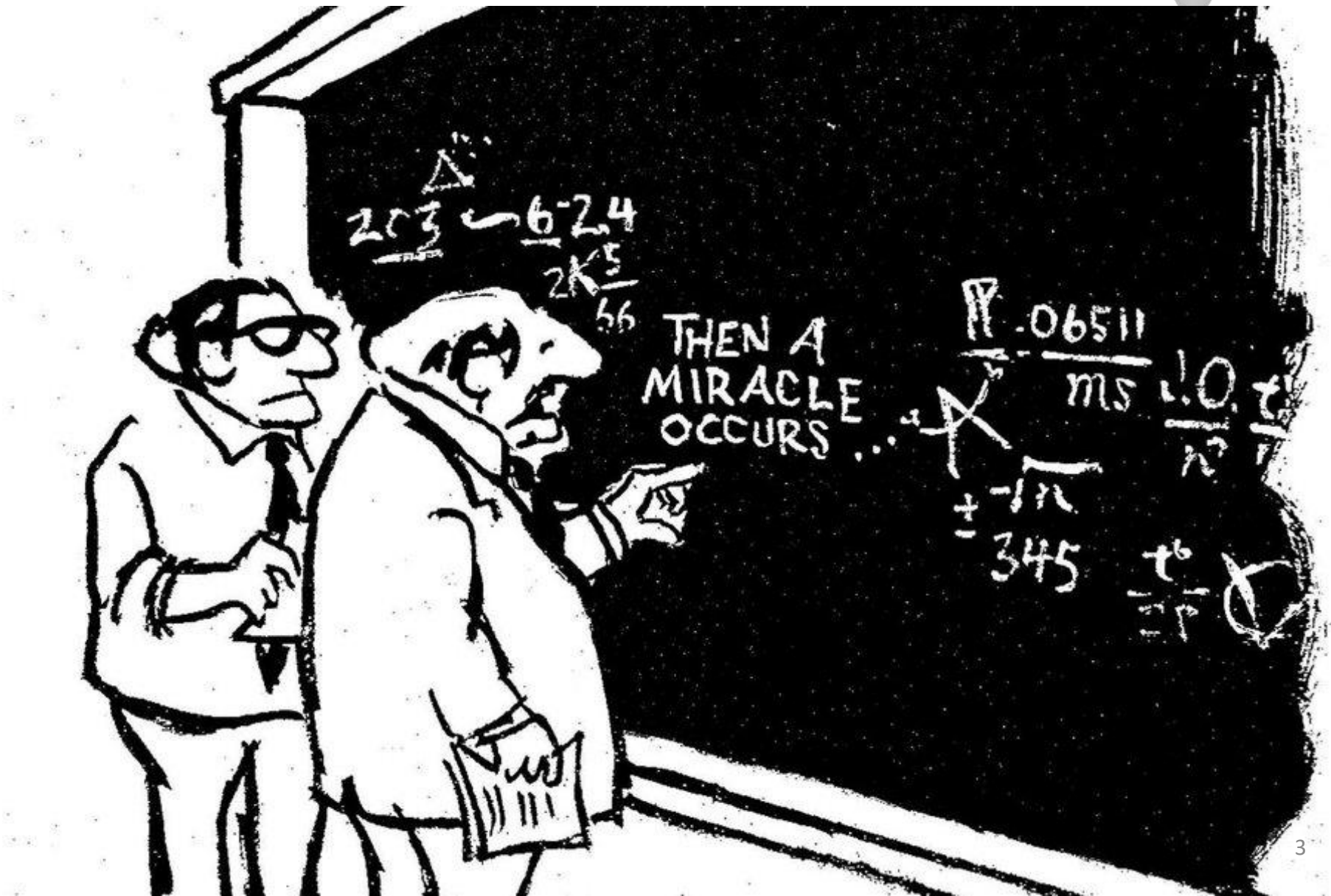
Overview

- Defining process evaluation
- Uses of process evaluations
- Key methods used in process evaluation, their strengths & challenges

Process evaluation –

study aiming to understand the functioning of an intervention.

How is the intervention implemented? How does it work in the context?



“An apple a day keeps the doctor away”

(example based on Funnell & Rogers, 2011)

Mechanisms

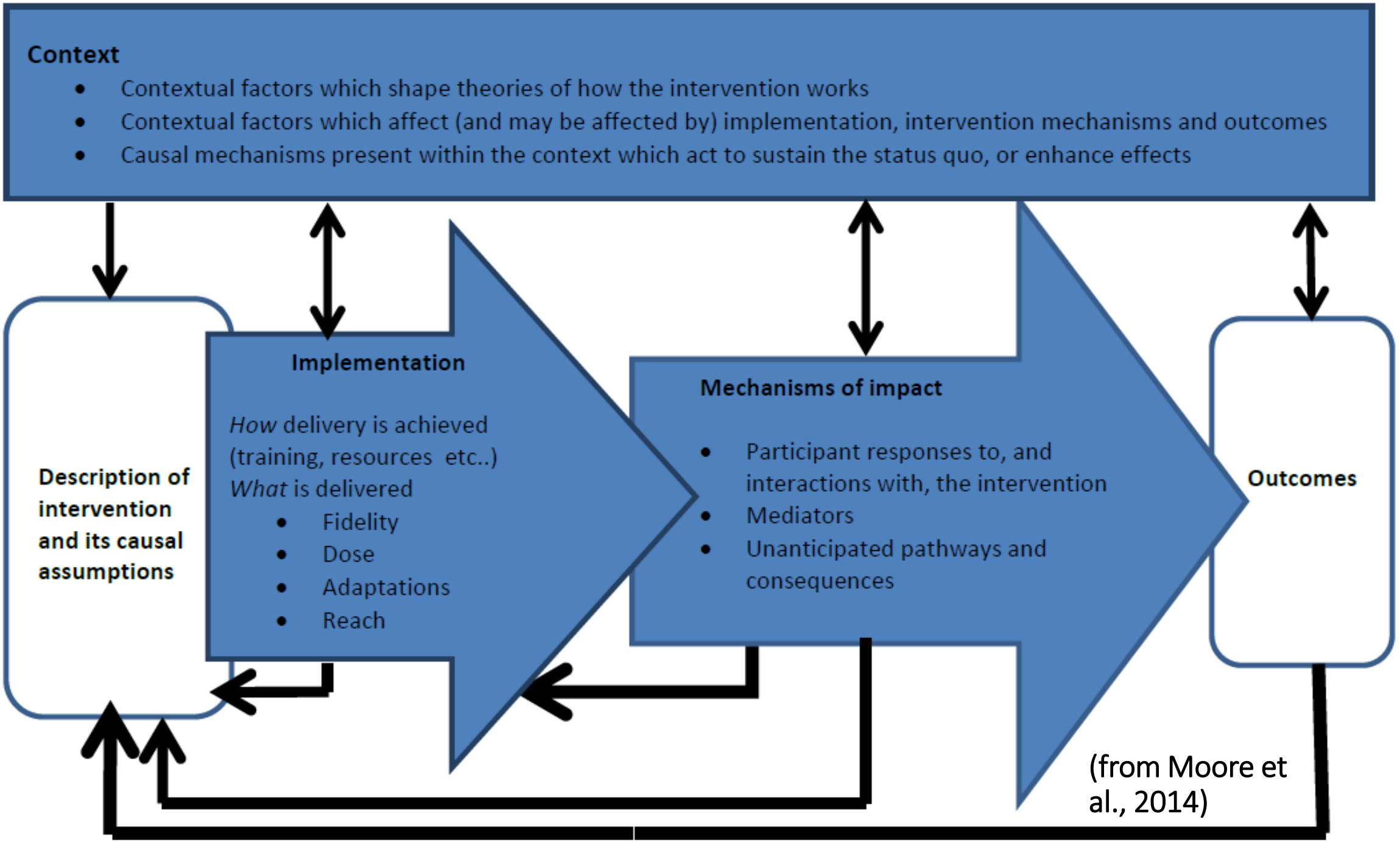
- Increase in vitamin C? quercetin? fiber?
- Decreased consumption of unhealthy snacks?

Context

- What are the social norms about eating fruit?
- How was the harvest and what are the prices?

Implementation

- Do the participants receive and consume the fruit?


Context
Contextual factors which shape theories of how the intervention works
Contextual factors which affect (and may be affected by) implementation, intervention mechanisms and outcomes
Causal mechanisms present within the context which act to sustain the status quo, or enhance effects
Description of intervention and its causal assumptions
Implementation
How delivery is achieved (training, resources etc..)
What is delivered
Fidelity
Dose
Adaptations
Reach
Mechanisms of impact
Participant responses to, and interactions with, the intervention
Mediators
Unanticipated pathways and consequences
Outcomes
(from Moore et al., 2014)

Related concepts

- Program monitoring
- Theory-based evaluation (Weiss 1997)
- Theory-driven evaluation (Chen & Rossi 1983)
- Realist evaluation (Pawson and Tilley 1997)
- Realist trials (Bonell et al. 2012)
- Implementation assessment (JPAL)
- Implementation research (Peters, Tran & Adam 2013)
- Causal map (Montibeller & Belton 2006)
- Logic model (Rogers 2004)
- And many others!

Example: Stop Smoking in Schools Trial

- Intervention: training influential students as peer supporters to encourage their peers not to smoke
- ASSIST trial, evaluation in the UK (Audrey et al., 2004), integrated findings from process and outcome evaluations
- Outcome evaluation found reductions in smoking amongst occasional and experimental smokers, but not regular smokers
- Process evaluation (observations, interviews, focus groups in 4/30 schools): peer supporters concentrated their attention on peers who they felt could be persuaded (protecting themselves from potential hostility)

Stages of program development

Process evaluation has applications during:

- Feasibility and piloting
- Efficacy & effectiveness evaluation
- Implementation
- Pragmatic policy trials and natural experiments

Example: National Exercise Referral Scheme

- Evaluation of a government-funded scheme in Wales, UK (Moore et al., 2012)
- Individuals referred for a group exercise programme and motivational interviewing if: over 16 years & have mental health or coronary heart disease risk factors
- Fidelity assessed by observations & review of session audio recordings
- The majority of staff were not delivering sessions in line with motivational interviewing principles and goal-setting
- Qualitative data suggested other influences on physical activity motivation (social support, realistic role models, less intimidation) (Moore et al., 2013)
- The intervention was effective for increasing physical activity (outcome evaluation)

Relevant tools and methods

- Interviews
- Focus groups
- Other consultative designs
- Observations
- Surveys
- Review of program records and administrative documentation

Trade-offs in collecting fidelity data

Method	Definition	Pros	Cons
Self-report	From provider	- Time and cost efficient - Gives perspective of provider	- Uncertain validity - Social desirability bias
Observation	Independent rater	- Objective - Validity and reliability can be assessed	Time and cost
In vivo	Live	Overall assessment (e.g. of context)	- Feasibility - Reactivity effects
Video	Recorded	Enables review and check on coding reliability	- May miss things - Cost - Reactivity
Audio	Recorded	- Cheaper - Can still review and check coding reliability - Less reactivity	- Miss non-verbal aspects - Miss context

- Hawthorne (observer) effect: individuals modify an aspect of their behaviour in response to their awareness of being observed.
- What if we find out something is going wrong?

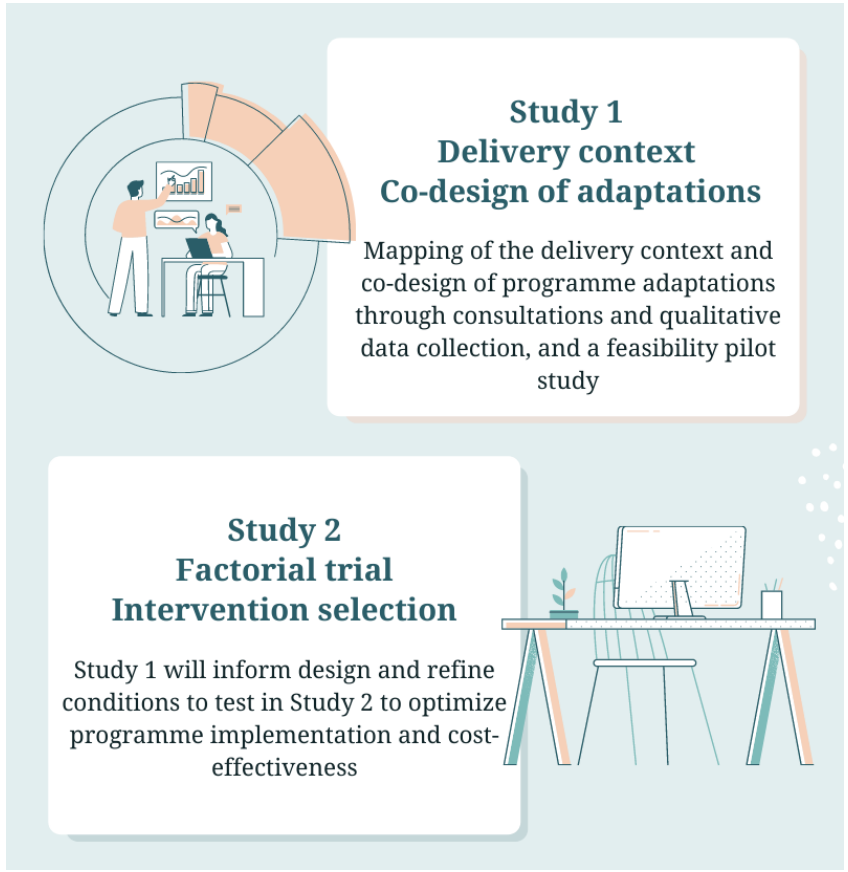
Breitenstein *et al.,* 2010, summary by Felix van Urk

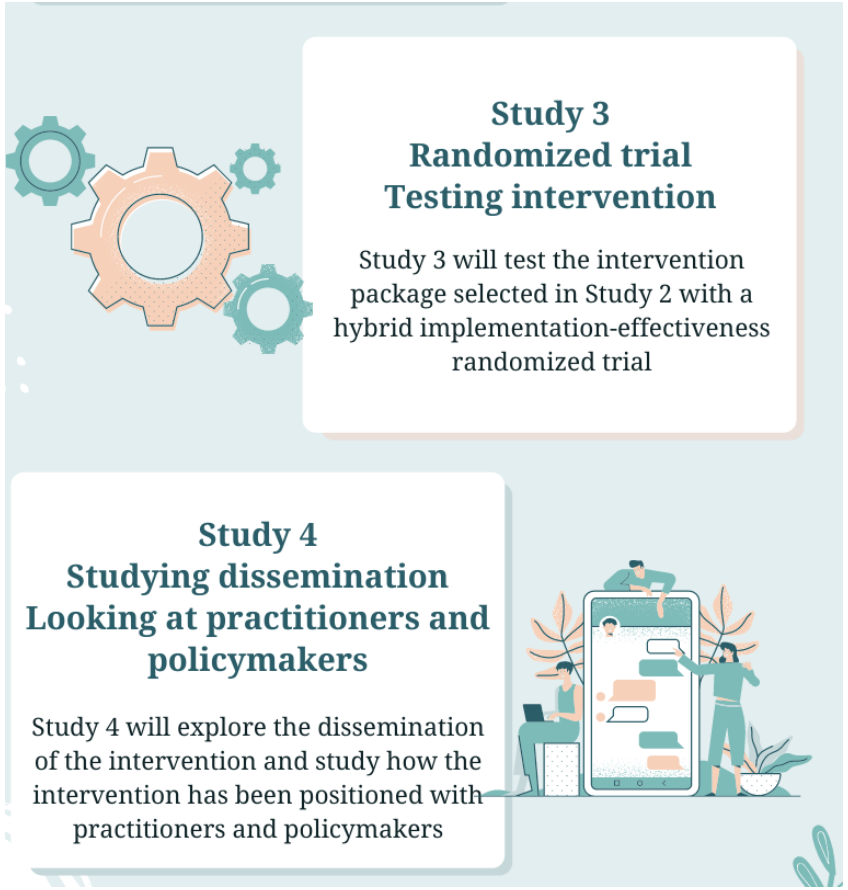
Example: Parenting for Lifelong Health evaluation in South Africa

- Evaluation of a 14-week parenting programme for families with adolescents, focusing on family relationships and skills (Cluver et al., 2018); developed by academics, WHO, UNICEF, other partners
- Observations of all programme sessions to normalize the presence of an observer (Shenderovich et al., 2019) & explaining the purpose of data collection – but we cannot be sure if that reduced bias & whether observation became a part of the intervention

Upcoming evaluation in Moldova and N. Macedonia

Family-Focused Adolescent & Lifelong Health Promotion (FLOURISH)
https://www.flourish-study.org/about.html





PhD research and other collaboration opportunities

FLOURISH Consortium

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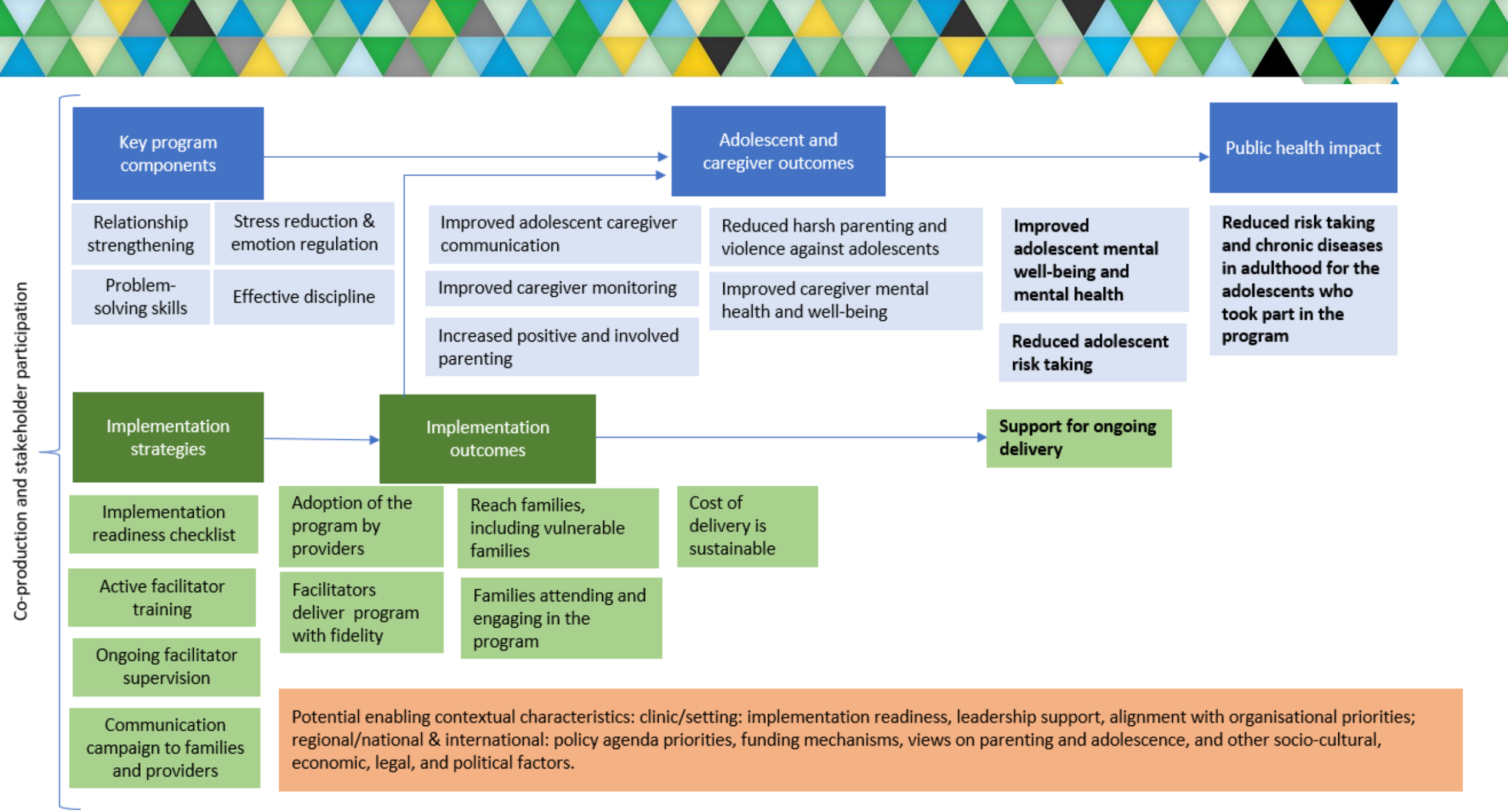

Theory of change for FLOURISH

Why is process evaluation necessary?

- Explaining success *(Will outcomes be similar in other contexts?)*
- Explaining failure (*Is it due to the intervention, poor implementation, context?)*
    - Type III error (Basch et al 1985; rejecting a promising intervention due to poor implementation)
- Equity (*Were all the relevant subgroups in the target population able to access the intervention and have beneficial outcomes?*)
- Considering implications for scaling up
- Looking across multiple studies - understanding the nature of intervention and implementation heterogeneity (TIDieR, CONSORT-SPI)

Resources on process evaluation

- Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, Moore L, O'Cathain A, Tinati T, Wight D: Process evaluation of complex interventions: Medical Research Council guidance. *bmj* 2015, 350.
- Skivington K, Matthews L, Simpson SA, Craig P, Baird J, Blazeby JM, Boyd KA, Craig N, French DP, McIntosh E: A new framework for developing and evaluating complex interventions: update of Medical Research Council guidance. *bmj* 2021, 374.
- https://implementationscience-gacd.org/case-studies/ - GACD implementation science hub

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- On process evaluations in education: https://educationendowmentfoundation.org.uk/news/what-can-we-learn-from-implementation-and-process-evaluations

Thank you!

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