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Housing First Forum
March 8, 2019

Logic Modelling and Outcome Evaluation for Housing First

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Plan for today

- Discuss logic modelling
- Discuss outcome evaluation design
- Discuss outcome evaluation measurement
- Review Housing First outcome evaluation example
- Exercise and discussion

Logic Modelling

- Logic model: *"a visual depiction of the underlying program theory"* (Hill & Thies, 2010)

- Program theory: *"a specification of what must be done to achieve the desirable goals, what other important impacts may also be anticipated, and how these goals and impacts would be generated" (Chen, 2005)*

Logic Modelling

- Logic models elaborate **program theory visually** and identify:
  - Program activities
  - Objectives
  - Expected goals, also called outcomes

Why are they important?

- Why do we use program theory and logic models in evaluation?

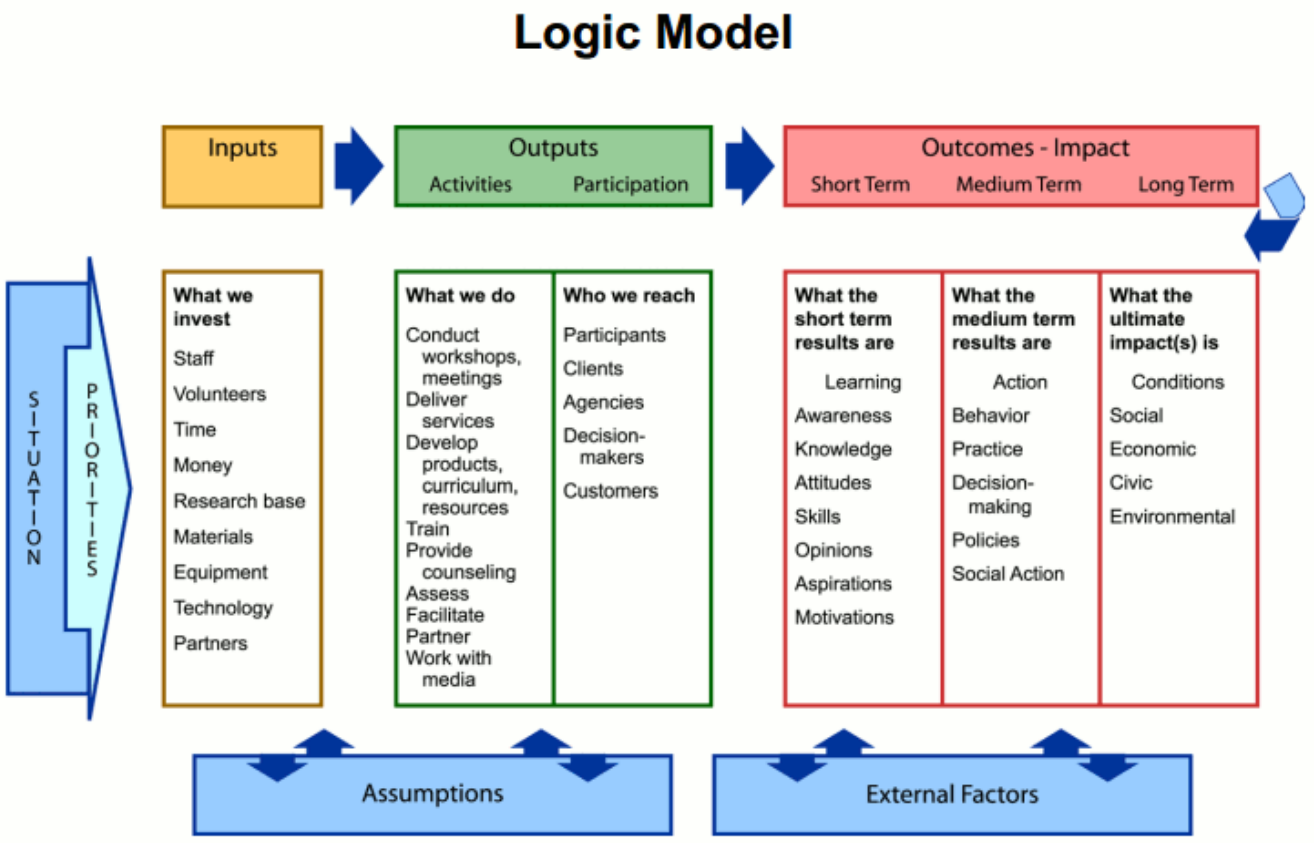
- Like a road map to how your program is supposed to work
- Facilitates evaluation design by:
  - identifying relationships between program components and outcomes to test

Logic Modelling

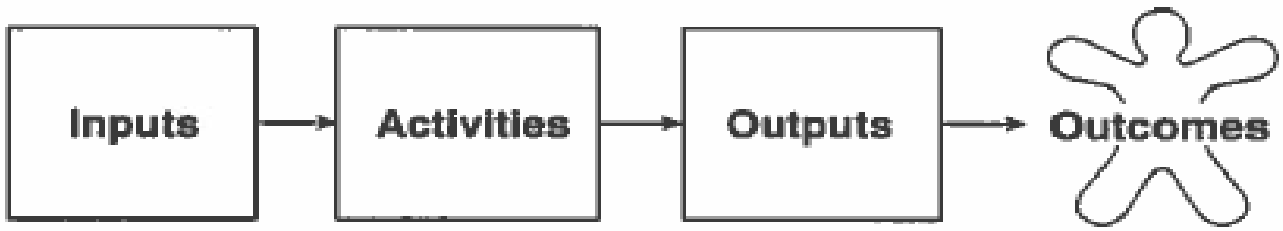
Common categories:

- Inputs - resources needed for program
- Activities – activities delivered by program
- Outputs – resources expended (quantified)
- Outcomes – goals to be achieved by program
  - Short-term
  - Mid-term
  - Long-term

Logic Model Example



Logic Modelling (in Chen)



Resources dedicated to or consumed by the program

Examples
- Money
- Staff and staff time
- Volunteers and volunteer time
- Facilities
- Equipment and supplies

What the program does with the inputs to fulfill its mission

Examples
- Feed and shelter homeless families
- Provide job training
- Educate the public about signs of child abuse
- Counsel pregnant women
- Create mentoring relationships for youth

The direct products of program activities

Examples
- Number of classes taught
- Number of counseling sessions conducted
- Number of educational materials distributed
- Number of hours of service delivered
- Number of participants served

Benefits for participants during and after program activities

Examples
- New knowledge
- Increased skills
- Changed attitudes or values
- Modified behavior
- Improved condition
- Altered status

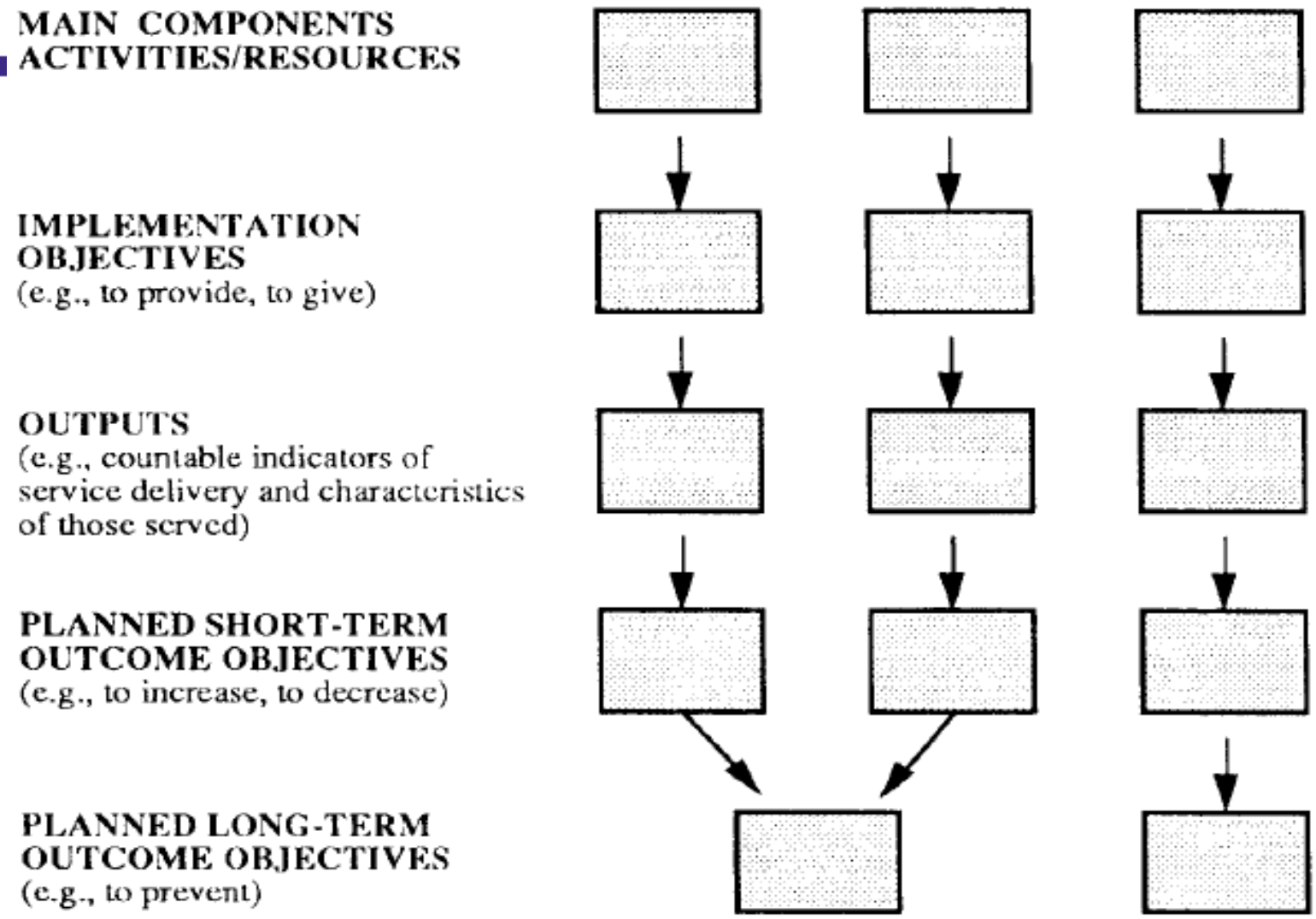
Constraints on the program

Examples
- Laws
- Regulations
- Funders' requirements

Figure 2.4 The United Way's Logic Model

SOURCE: Reprinted with permission of the United Way.

Logic Modelling (in Rush & Ogborne)



Hill & Thies (2010)

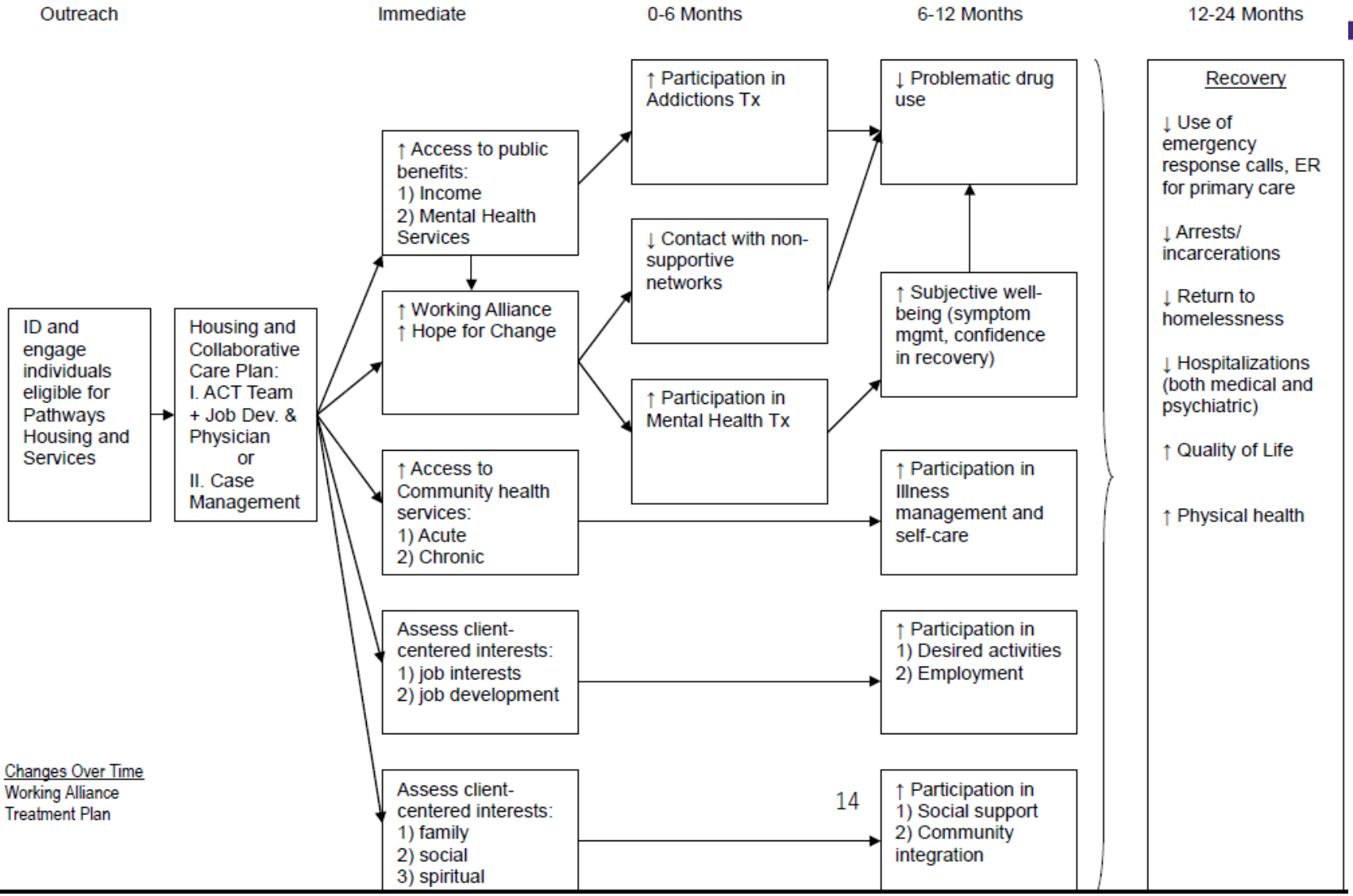
Conditions (needs or problems)	→	*Resources/ Inputs (collaboration and planning)*	→	*Strategies*	→	ACTIVITIES	→	*Short-Term Outcomes (system-level change)*	→	*Long-Term Impacts (client-level change)*
Lack of a coordinated system to address the needs of families in which child maltreatment (CM) and domestic violence (DV) intersect (co-occur).	→	--Federal technical assistance --Needs assessment/ self-study by system partners --Results of national evaluation data collection --Federal Expectations of funding agencies --Review of best practices in cross-system protocols including screening and assessment, confidentiality, client satisfaction, and reasonable efforts	→	(1) Coordinate systems including service coordination, monitoring service effectiveness, safety plans, model service plans, policies, and procedures	→		→	See Table 2	→	--Higher rates of victim satisfaction with system experience --Increased victim safety --Increased family stability --Improved access to DV and related community services for victims and batterers --Increased compliance on the part of batterers with court-ordered treatment and other court orders --Decreased batterer recidivism
				(2) Promote skill building and cross-training	→		→	See Table 2	→	
				(3) Strengthen collaboration between courts and batterer intervention programs	→		→	See Table 2	→	
				(4) Create information linkages to permit greater access to court and criminal justice information and to victim resources and services	→		→	See Table 2		
				(5) Community outreach regarding DV/CM co-occurrence	→		→	See Table 2		
Contextual Factors										

Fig. 1. St. Louis County Greenbook Initiative Logic Model.

Hill & Thies (2010)

- Importance of contextual factors - external to program that cannot be controlled but can affect program implementation
  - Threats to internal validity of evaluation

Figure 1 - Pathways Housing First
Consumer Interventions and Outcomes
DRAFT June 8, 2009



Logic Modelling – Outcomes

- How to distinguish between outcomes?
  - Short-term
  - Mid-term
  - Long-term

- Depends on program, but…
  - Short-term – achievable within 6-12 mos.
  - Mid-term – achievable in 12-24 mos.
  - Long-term – 24+ mos, but highly dependent on program; may be out of scope of evaluation

Outcome Evaluation

- In outcome evaluation, there are two key questions:
  - To what extent have the desired changes in the outcomes occurred?
  - Can these changes in outcomes (effects) be attributed to the program (cause)?

Definitions

- Outcome evaluation:
  - Examines whether program has led to desired outcomes
- Research design:
  - Methods to test logic model through isolation of causal linkages
  - Examination of cause and effect relationship while holding constant other factors that could influence it

Validity in Research Designs(McDavid & Hawthorn, 2006)

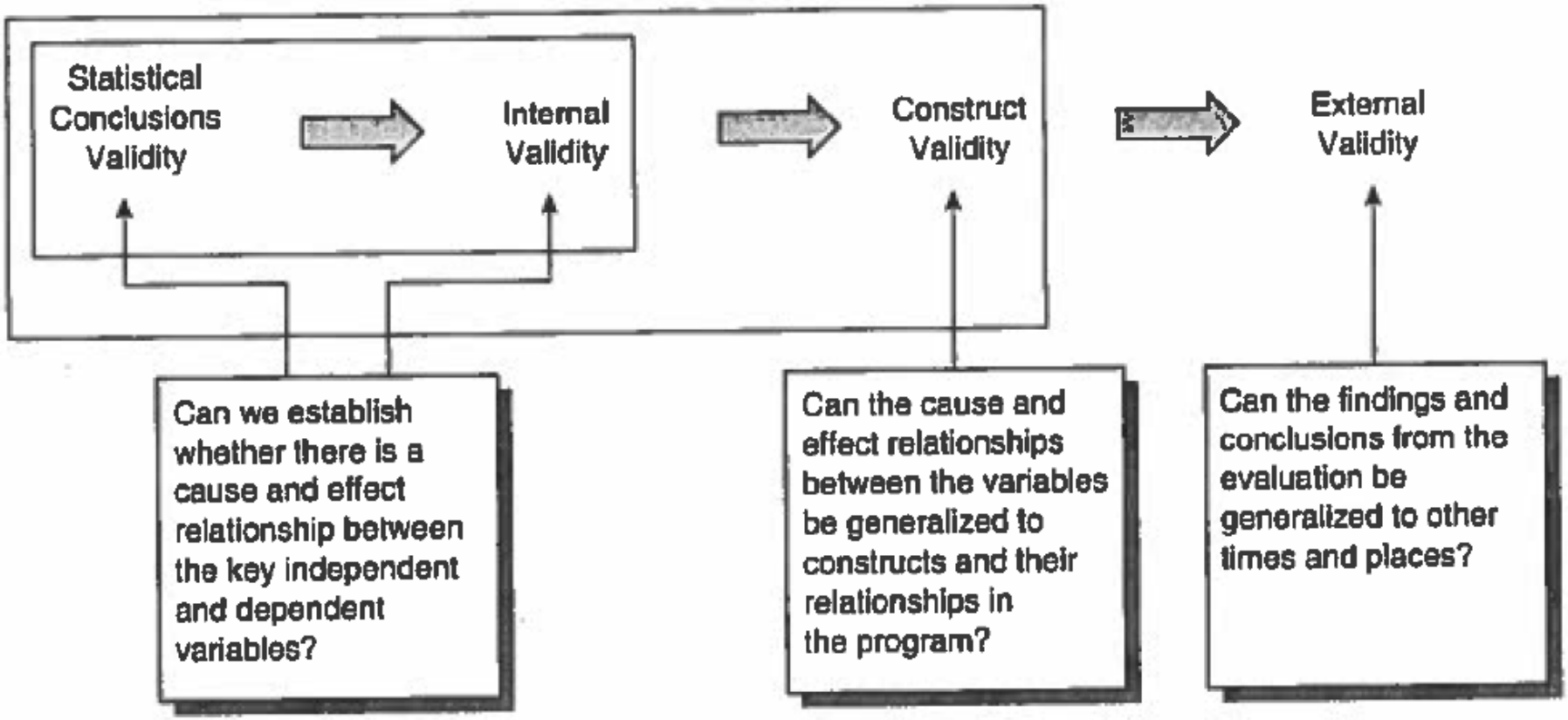


Figure 3.5 The Four Kinds of Validity in Research Designs

Types of design

Randomized controlled trial (RCT)

- "Gold standard" in program evaluation
  - Maximum rigour

- Before and after randomized design (with control group)

  R O X O (experimental group)

  R O O (control group)

Types of design

Randomized controlled trial

- After-only randomized design

R X O

R O

Types of design

- Why randomize?
  - Randomization ideally controls for all threats to internal validity

- What is internal validity?

Types of design

- Internal validity is:
  - The validity of inferences about whether observed co-variation between A (the presumed active ingredients of the program) and B (the presumed outcome) reflects a causal relationship from A to B

Threats to Internal Validity

- History
- Maturation
- Testing
- Instrumentation
- Statistical regression (aka regression to the mean)
- Selection
- Mortality or attrition
- Ambiguous temporal sequence in cause and effect variable
- Selection-based interaction

Types of design

Quasi-experimental designs

- The pre-test-post-test non-equivalent comparison group design, non-randomized

  O X O

  O O

- Single group pre-test post-test design

  O X O

- Interrupted (single) time-series design

  O O O O X O O O O

Construct Validity

- Ability to generalize from the variables and their relationships back to the constructs in the logic model
- Problems with construct validity related to how constructs have been operationalized and measured in the evaluation

Construct Validity

- Threats to construct validity:
  - Diffusion of treatments
  - Compensatory equalization of treatments
  - Compensatory rivalry
  - Resentful demoralization

External Validity

- Builds on previously discussed validities to allow evaluators to generalize findings to other populations/settings beyond the study
- Are findings representative?

External Validity

- Five threats:
  - Interaction between causal results and participants
  - Interaction between causal results and treatment variations
  - Interaction between causal results and outcome variations
  - Interaction between causal results and the setting
  - Context-dependent mediation

Measurement in Outcome Evaluation

Identify good indicators

- Your evidence
- Clearly linked to desired outcome or evaluation question
- Concrete
- Quantifiable (unless qualitative indicator)
- Changeable

Are all of these changes/outcomes realistic?

PROGRAM	DESIRED CHANGE
Parenting programs	Enhanced child development; reduction in abuse & neglect
Screening programs for intimate partner violence (IPV) in healthcare	Improved IPV screening rates; improved IPV detection rates; reduced IPV rates

Measure Domains

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- Knowledge
- Attitudes
- Behaviour
- Health status
- Skills
- Affect
- Cognitions
- Environments (e.g., organizational readiness)
- Relationships (e.g., collaborations, team work)
- Community level factors (e.g., crime rate; social capital)

Types of Measures

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- Self vs. other-report
- Global vs. specific
- Format (e.g., observations, self-report scale, logs, checklists)

Sources of data

- Data needed to test logic model
  - Existing data sources, e.g., program admin data
    - Is it possible to access?
    - Are baseline data for pre-post design available?
  - New data collected by the evaluator
    - Surveys
      - Measuring all constructs in logic model
    - Observations
    - Chart review
    - Qualitative interviews and focus groups

Survey design

- In-person, interviewer administered surveys
- Telephone surveys
- Online surveys
- Mail surveys

Response rates often suffer

Criteria for Selecting Measures

Criteria for Selecting Measures

- Appropriateness (relevance to program goals, objectives; client group)
- Psychometric soundness (reliable, valid, sensitive to change)
- Administrative efficiency (inexpensive, easy to use, not time-consuming)
- Utility (provides meaningful results that have clinical or program utility)

More tips about survey design

- Draw on validated, existing measures
- Be careful of recall periods
  - Use events calendars
- Start with warm-up questions, then program-related experiences
- Ask about demographics at end
- Train interviewers appropriately
- Always pilot survey

Housing First Program Example – At Home/Chez Soi Outcome Evaluation

At Home/Chez Soi Project (Goering et al. 2011)

- 'At Home/Chez Soi' Project examined a 'Housing First' approach to improving the lives of adults who experience both homelessness and serious mental illness
  - Housing First clients are provided with housing without prerequisites for sobriety and treatment, and given flexible access to supportive community-based health and social services
    - Consumer-driven model focused on choice, empowerment and self-determination

- Implemented in 5 cities across Canada
  - Moncton, Montreal, **Toronto**, Winnipeg & Vancouver

At Home/Chez Soi Project

- Funded by Health Canada and the Mental Health Commission of Canada
- Largest Housing First trial ever to be conducted in the world
- Implemented in 5 cities across Canada
  - Moncton, Montreal, Toronto, Winnipeg & Vancouver

Methods

- Randomized controlled trial, with mixed methods evaluation
  - Quantitative and qualitative
  - Implementation and outcome-focused
  - Participatory and transdisciplinary

- **2,148 individuals enrolled**
- Randomization (2010):
  - 1,158 to Housing First (HF) and service intervention (Assertive Community Treatment) for individuals with high needs; OR to a moderate needs (Intensive Case Management) intervention
  - 990 to a ‘treatment as usual’ arm

AH/CS Outcome Measures (Goering et al. 2011)

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Table 1 Key outcome and process domains and administration schedule

Domain	Variables	Instruments
Housing	Stability	Residential Time-Line Follow-Back Inventory[20] *
	Perceived quality	Perceived Housing Quality Scale[21 22]
	Observer-rated quality	Purpose developed observer-rated Housing Quality Scale
Health status	Mental	Modified Colorado Symptom Index (CSI)[23]
	Physical	Global Assessment of Individual Needs GAIN Substance Problem Scale[24 25]
		EQ-5D Visual Analog Scale[26–28]
Functioning including community integration, recovery and vocational attainment	Independent living	Multnomah Community Ability Scale (MCAS)[29–31]
	Response to stress	
	Money management	Adapted community integrations scales (physical and psychological integration)[32–34]
	Social	
	Meaningful activity, etc	Recovery Assessment Scale[35–37]
		Vocational Time-Line Follow-Back[38] *
Quality of life	Generic quality of life and health-related quality of life	EQ-5D[36–38]
		SF-12[28 39 40]
		SF-6D[41]
		Qoli-20[42]
Healthcare, social services and justice system use and costs	For example, emergency room visits, hospital admissions, primary and specialist care visits, social agency visits, etc. Charges, court appearances, nights in jail or remand, etc	Composite checklists of service use and justice system-related events, to be combined with administrative data from several mostly site-specific provincial government sources to which costs will be attached using standard costing methods

*Indicates instruments administered every 3 months; all others are every 6 months, except the Housing Quality Scale which is only at 21 months.

Quantitative Results

- Housing First participants experienced more days stably housed than TAU participants over time

- Housing First participants had higher community functioning scores at 24 months than TAU participants

(Goering, Veldhuizen, Watson et al., 2014)

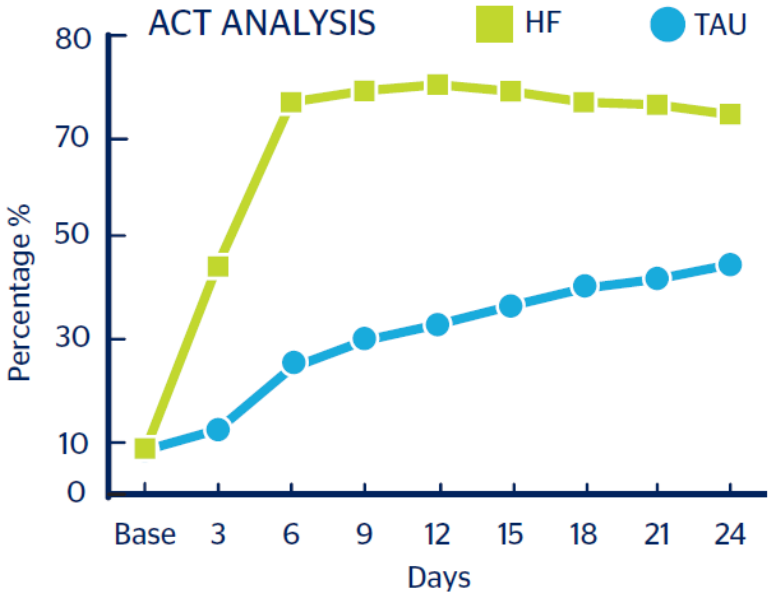
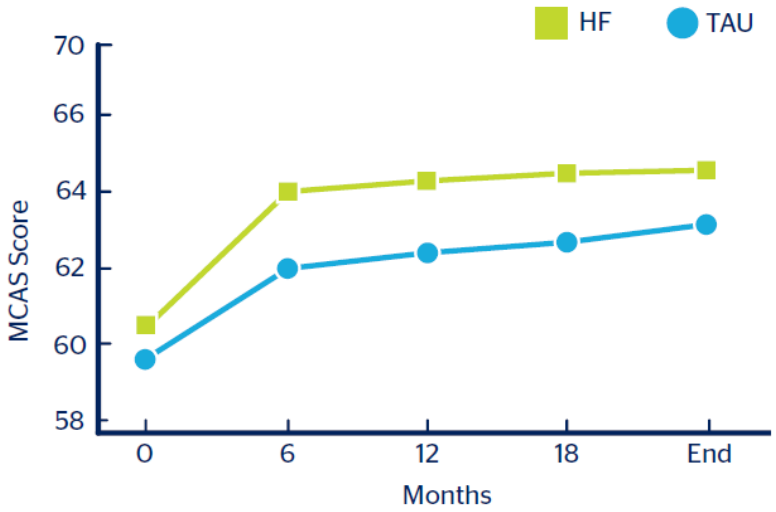


Figure 2. Per cent of follow-up days spent in stable housing by study group over 24 months over three-month periods.

Figure 15. Differences between HF and TAU in Community Functioning over the Study Period.



Aubry et al., 2016

Findings:

- HF + ACT participants had more days stably housed than TAU participants
- HF +ACT participants showed significantly greater gains in community functioning and quality of life in the first year
- differences between the two groups were attenuated by the end of the second year
- Many of the TAU participants had found housing over the course of the study period

Aubry et al. 2016

- What were some of the problems re: validity?

Qualitative interviews in Toronto Site (Edgar et al, 2011; Kirst et al. 2011)

- In-depth interviews with subsample of participants in HF and Treatment as Usual (TAU) arms at:
  - Baseline – 60 participants
  - 18 months – 50 participants

- Longitudinal thematic analysis, involving comparison by study arm of positive and negative changes across outcomes over time

- At baseline, majority of intervention participants, and some TAU, were newly housed
  - others aspired to become housed

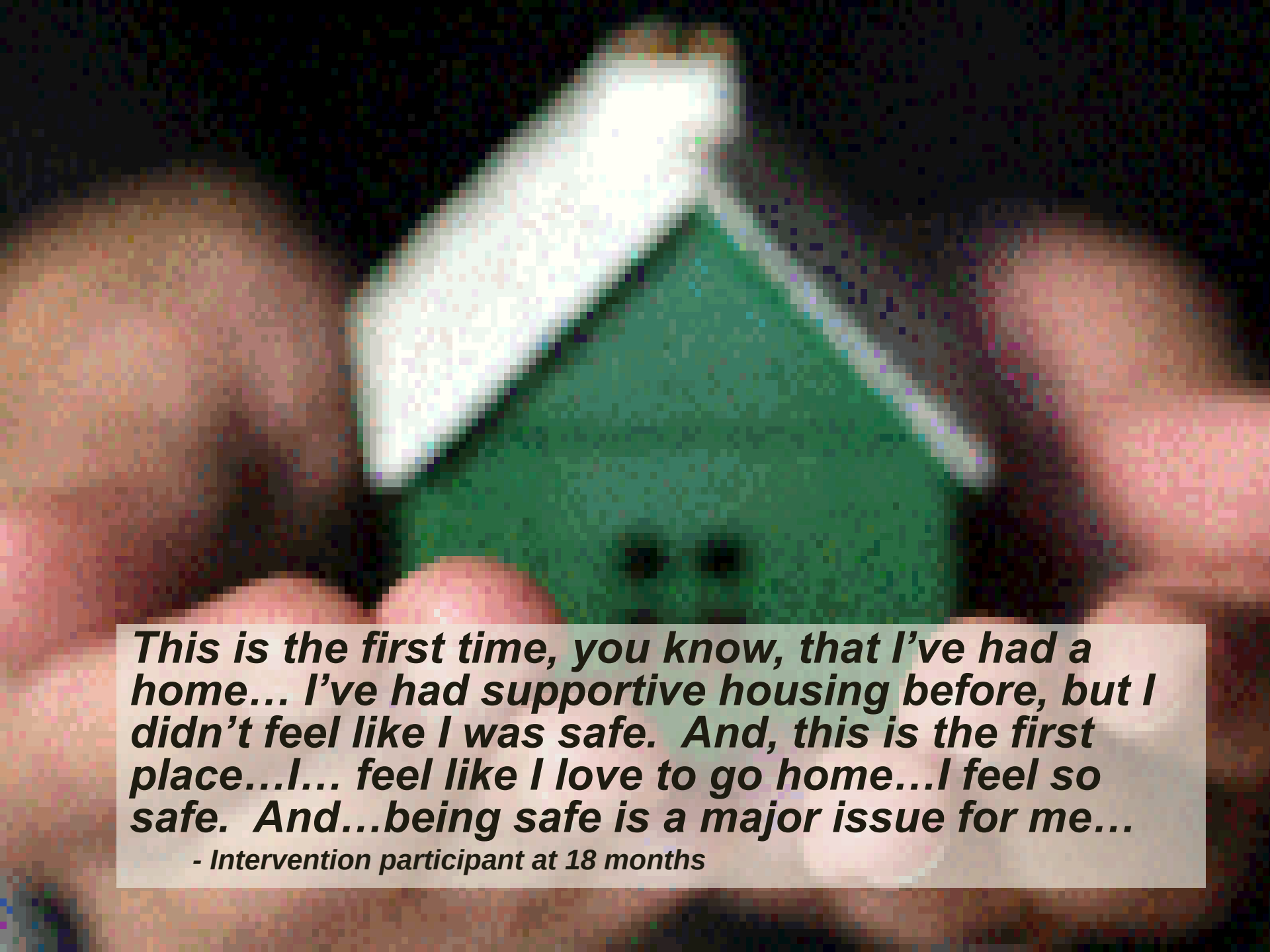
- Regardless of housing status at baseline, many participants hoped to make positive changes in the future and had goals in the following areas:
  - Recovery from mental health problems and addictions
  - Improved physical health
  - Increased freedom and control (ontological security)
  - Education and employment
  - Re-establishing relationships with family and friends

(Kirst, Zerger, Wise Harris et al., 2014)

At 18 months:

- Increased experiences of life control/safety & hope for the future
- Achieving goals related to work and education
- Reconnecting with family/friends and starting new relationships
- Improved physical and mental health, and nutrition

(Edgar, Plenert, Kirst et al., 2013)



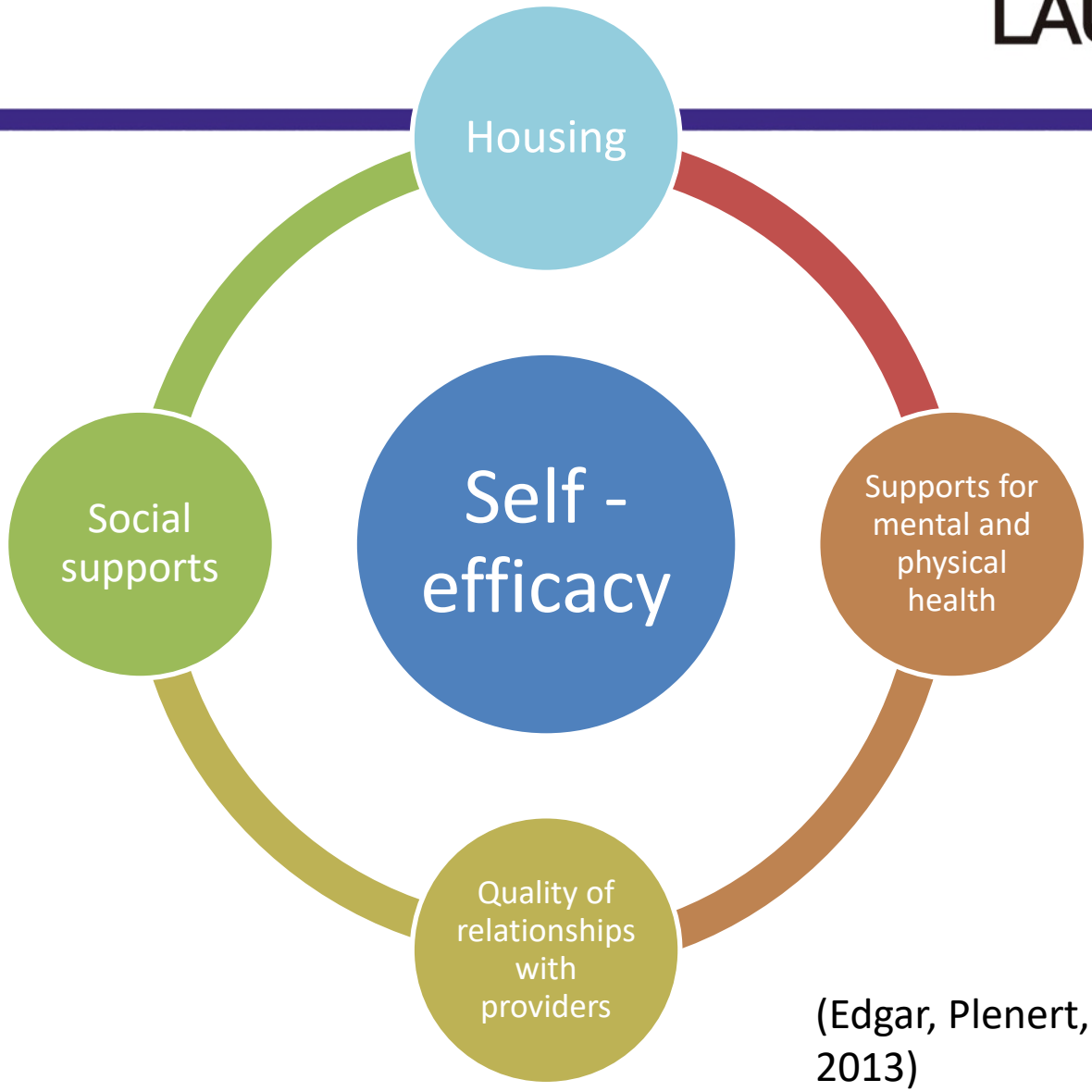
This is the first time, you know, that I've had a home… I've had supportive housing before, but I didn't feel like I was safe. And, this is the first place…I… feel like I love to go home…I feel so safe. And…being safe is a major issue for me…

- Intervention participant at 18 months

Early on, some participants experienced:

- Social isolation and loneliness
- Challenges in adjusting to daily household activities
- Safety issues
- Poor housing quality and neighbourhoods

Key Facilitators to Positive Change



(Edgar, Plenert, Kirst et al., 2013)

Integrated Health and Social Care Program Example

Metzelthin et al. 2013

- Outcome evaluation of an integrated health and social care program for patients with complex needs
  - A multidisciplinary team (nurse, GP, occupational and physio-therapists) provides:
    - Individualized assessment
    - Case management – referral to services
    - Long-term follow-up
- Provided through home visits and established protocols
- Purpose is to better coordinate complex care and support clients to age at home in the community

Metzelthin et al. 2013

- Evaluation design: cluster RCT
  - 6 practices randomized to PoC intervention
  - 6 practices randomized to control
- Data collected at enrollment (baseline), 6, 12 and 24 months
- Outcomes:
  - disability and physical functioning
  - depressive symptomatology
  - social support interactions
  - fear of falling
  - social participation

Metzelthin et al. 2013

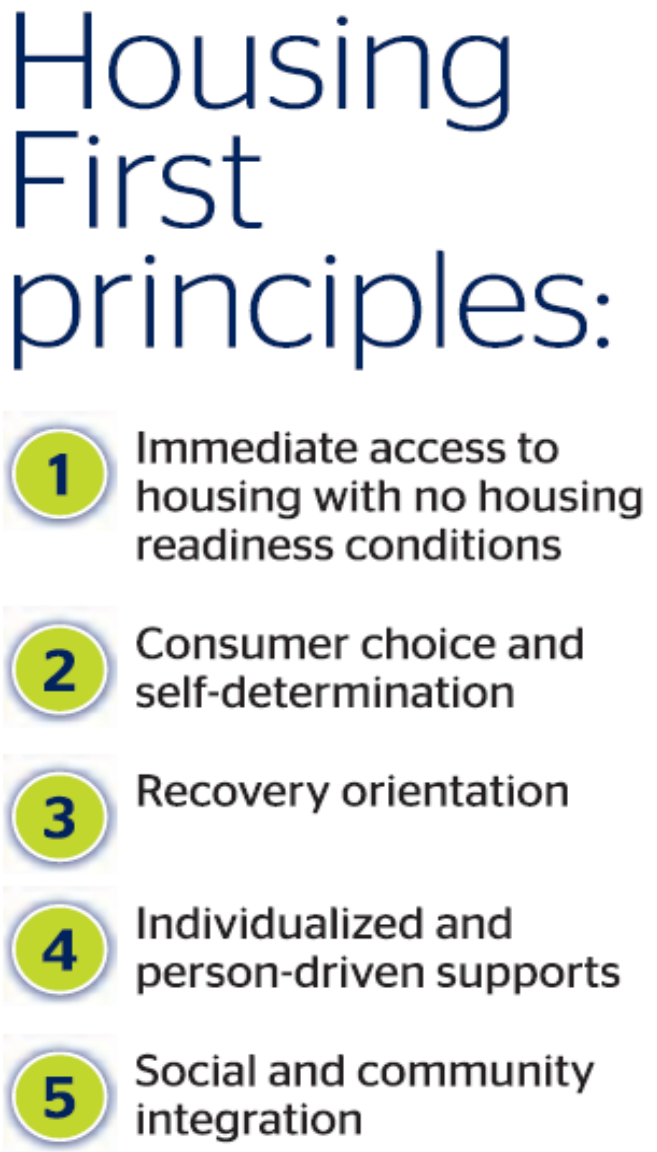
- No differences were found in **any** of the outcomes between the intervention practice patients and control patients, over time

- What went wrong?

  - Differences between intervention and control groups at baseline
  - Attrition
  - Difficulty in assessing extent of implementation
  - Intervention may not have been implemented as planned
  - Standard healthcare in Netherlands is already of high, integrated quality

Let's Design!!!

- Housing First Program



Program Example

- What are the first things you ask your funders/stakeholders to help inform your evaluation design?
- What kind of design should we use?
- What outcomes should we measure?

AH/CS Outcome Measures (Goering et al. 2011)

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*Indicates instruments administered every 3 months; all others are every 6 months, except the Housing Quality Scale which is only at 21 months.

Program Example – Safer Injection Sites

Safer injection sites:

- Have injection stalls where people who inject drugs (PWID) inject pre-obtained illicit drugs under the supervision of medical staff
- Nurses respond to overdoses and address other health issues (e.g., injection-site abscesses)
- Addiction counsellors and support staff are onsite, who seek to meet the needs of PWID or refer them to appropriate community resources (e.g., housing services, addiction treatment)
- Sites seek to reduce public order issues related to public injection (Wood et al. 2006)

Program Example - SISs (Potier et al. 2014)

Domain	Variables
Mortality & morbidity	# of overdose calls; number of overdoses averted
Risks associated with injection	Impact of education on injection practices
Healthcare utilization	# of hospitalizations; use of healthcare services related to infection
Access to addiction treatment	Access to detox services; number of referrals to addiction tx programs
Public order	# of syringes discarded in public; # of people injecting in public
Impact on drug-related crime, violence	Area-related incidence od crime, incarceration
Cost-benefit analysis	