

## PART 4: TAILORING

# *Mechanisms in Dementia Caregiver Intervention Research*

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## PURPOSE OF THIS HANDOUT

This guidance document is designed for researchers developing, testing, or evaluating caregiver-focused behavioral interventions. It clarifies the distinction between **mechanisms of action and tailoring**, and explains how they interact to improve intervention effectiveness, implementation, and equity.

This document complements the companion guide “Mechanisms of Action in Behavioral Interventions for Dementia Family Caregivers” by focusing specifically on tailoring strategies while maintaining mechanism fidelity.

## 1. CORE CONCEPTS

### Mechanisms of Action (“Why it Works”)

Mechanisms are the **causal processes** through which an intervention produces change in outcomes.

In caregiver interventions, common mechanisms include:

- Increased **caregiver self-efficacy**
- Reduced **perceived burden or stress**
- Improved **coping skills**
- Enhanced **social support**
- Changes in **knowledge or beliefs** about caregiving
- Cognitive reappraisal and reframing
- Behavioral skill acquisition
- Emotional regulation

Mechanisms are typically:

- Theory-driven (e.g., Stress Process Model, Social Cognitive Theory)
- Measurable (mediators in statistical models)
- Generalizable across populations or subgroups

### Tailoring (“For Whom and How it Works Best”)

Tailoring refers to the **systematic customization of intervention components** based on characteristics of the caregiver, care recipient, or context.

Tailoring addresses the reality that caregivers are heterogeneous:

- Not all caregivers need the same intensity or type of support
- What works for one caregiver may be irrelevant or inaccessible to another
- Timing, format, and dose must match individual circumstances
- Cultural, linguistic, and contextual factors influence engagement and benefit

### Tailoring variables may include:

#### CAREGIVER CHARACTERISTICS

- *Demographics*: Age, gender, race/ethnicity, education, literacy
- *Psychosocial profile*: Stress level, depression, coping style, self-efficacy
- *Risk status*: High vs. low burden, clinical depression, isolation
- *Readiness for change*: Precontemplation, contemplation, preparation, action
- *Preferences*: Communication style, learning modality, technology comfort
- *Resources*: Time availability, financial resources, social support access

#### CARE RECIPIENT CHARACTERISTICS

- *Disease stage*: Mild, moderate, severe dementia
- *Symptom profile*: Behavioral symptoms, functional decline, medical comorbidities
- *Relationship to caregiver*: Spouse, adult child, other
- *Living situation*: Co-residence, nearby, distant

#### CONTEXTUAL FACTORS

- *Cultural context*: Values, beliefs, stigma, family structure
- *Geographic context*: Rural vs. urban, service availability
- *Practical constraints*: Work obligations, other caregiving responsibilities
- *Technology access*: Internet, smartphone, computer literacy

### Tailoring is typically:

- Data-informed (baseline assessments, ongoing feedback)
- Dynamic (can change over time)
- Focused on relevance and engagement
- Designed to optimize mechanism activation for specific individuals

## 2. KEY DISTINCTION

WHAT TAILORING IS NOT: Tailoring is NOT a mechanism. Rather, tailoring optimizes which mechanisms are targeted and how strongly they are activated.

✘ **INCORRECT:** “Our mechanism is personalization”

✔ **CORRECT:** “Our mechanisms are self-efficacy and coping skills. We tailor the intensity and focus of skills training based on baseline burden level.”

✘ **INCORRECT:** “Tailoring to cultural background is how our intervention works”

✔ **CORRECT:** “Our intervention works through cognitive reappraisal. We tailor the examples and metaphors used in cognitive restructuring to be culturally relevant.”

MECHANISM	TAILORING
Explains <b>how change happens</b>	Determines <b>how intervention is delivered or adapted</b>
Linked to <b>theory and causal pathways</b>	Linked to <b>individual differences and contextual characteristics</b>
Evaluated via <b>mediation analysis</b>	Evaluated via <b>moderation or subgroup analysis</b>
Should remain <b>consistent across participants</b>	Intentionally <b>varies across participants</b>

## 3. HOW TAILORING AND MECHANISMS INTERACT

Tailoring does not replace mechanisms—it **optimizes their activation**. Tailoring is a core feature of how an intervention is delivered.

### Conceptual Relationship



### Example

Intervention goal: Reduce caregiver stress

- Mechanism: Improve coping skills
- Tailoring:
  - High-burden caregivers → intensive coping training
  - Low-burden caregivers → lighter-touch education

In this case, the **mechanism (coping)** is constant, but **tailoring affects how strongly and the way it is activated**.

## 4. DESIGN IMPLICATIONS FOR CAREGIVER STUDIES

### Specify Mechanisms Explicitly

- Identify hypothesized mediators in your conceptual model
- Align intervention components with specific mechanisms
- Select validated measures for each mechanism

### Plan Tailoring Strategically

- Define which variables will drive tailoring
- Specify decision rules (e.g., if/then logic, algorithms)
- Distinguish between:
  - *A priori tailoring* (baseline-based)
  - *Adaptive tailoring* (time-varying, responsive)

- Avoid conflating tailoring with mechanisms
- Ensure tailoring does not inadvertently change the core mechanism (Question to answer: “What are the active ingredients that must be preserved across all tailored versions?”)
- Document tailoring variables and decision rules
- Track which participants received which adaptations
- Test moderation (who benefits most)

### Combined Questions

- Does tailoring strengthen the mechanism?
- For whom is the mechanism most active?

## 5. COMMON PITFALLS

- **Confusing tailoring with mechanisms**
  - Example: “Personalization” is not a mechanism unless it changes a psychological process
- **Over-tailoring without theory**
  - Excessive customization can reduce fidelity and obscure causal inference
- **Under-specifying tailoring rules**
  - Limits reproducibility and scalability
- **Failing to measure mechanisms**
  - Prevents understanding of how the intervention works
- **Ignoring implementation burden**
  - Designing tailoring that works in research, but is impossible to implement in practice
- **Tailoring that inadvertently changes the mechanisms**
  - Customizing in ways that fundamentally alter what the intervention is doing

## 6. PRACTICAL CHECKLIST

Before launching your study, confirm:

### MECHANISMS:

- Mechanisms are clearly defined and theory-based
- Each intervention component maps to a specific mechanism
- Measures selected for each hypothesized mediator
- Temporal ordering planned (mediators before outcomes)

### TAILORING:

- Tailoring variables are justified (theoretical/empirical rationale)
- All tailoring variables are measurable
- Decision rules are explicitly specified (if/then algorithms)
- Thresholds or categories are defined
- Type of tailoring is clear (a priori, adaptive, preference, combination)

### INTEGRATION:

- Distinction between mechanisms and tailoring is clear
- Core mechanisms are preserved across all tailored versions
- Tailoring is designed to optimize mechanism activation
- Both “what works” (mechanisms) and “for whom” (moderation) will be tested

### MEASUREMENT:

- Data collection supports mediation analysis
- Data collection supports moderation analysis
- Tailoring variables are assessed at appropriate timepoints
- Fidelity assessment covers both mechanism delivery and tailoring process

### DOCUMENTATION:

- Intervention manual specifies core components (mechanisms)
- Tailoring manual specifies decision rules and customization options
- Tracking system records which participants received which tailoring pathway
- Fidelity tools assess both mechanism and tailoring fidelity

### ANALYSIS PLAN:

- Plan for testing mediation (how intervention works)
- Plan for testing moderation (for whom it works)
- Plan for testing whether tailoring adds value
- Adequate power for interaction tests

### IMPLEMENTATION:

- Tailoring is feasible for community interventionists
- Training plan addresses both mechanisms and tailoring
- Fidelity monitoring plan is sustainable
- Pathway from efficacy to scaling is considered

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