The adaptation and adherence dilemma in the evidence-to-practice pathway

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Funders


Learning objectives

- Reflect on the adaptation and adherence dilemma
- Be familiar with how adaptations affect the outcome of interventions
- Discuss what different actors (researchers, providers, etc) can do to mitigate the adaptation and adherence dilemma
Agenda

- Overview of the Adherence – Adaptation dilemma
- Meta-analytic results from a study comparing adopted, adapted and novel interventions; Possible reasons for the mixed outcomes of interventions when they are moved from one context to another
- How are adaptations viewed by different actors: researchers, health care professionals and managers in both health care and social care?
What role does adaptation and adherence play when a new method is implement?

Is it evidence-based if changes are made to an EB-method?

Can we count on getting the same effects when an EB-method is applied in a new context?
Adherence- Fidelity - integrity

The degree to which a program/intervention is implemented as designed

Dusenbury et al 2003
Health Education Research
Six arguments for high adherence and five for adaptations
Dilution compromises a programs integrity and effectiveness.
Hall 1975 Hall (1975) Levels of use of the innovation: a framework for analyzing innovation adoption. J of Teacher education, 26, 52,56. A
$^2\text{H}$ $^3\text{H}$

$^4\text{He} + 3.5 \text{ MeV}$

$n + 14.1 \text{ MeV}$
Fig. 22.1: The Normal Probability Curve
Expected effect

Research stage

Dissemination/spread

Effectiveness trial

Efficiency trial

Intervention

Intervention (adapted or drifted)

Intervention (adapted or drifted)

Intervention (adapted or drifted)

Intervention

Chambers et al. Implementation Science 2013 8:117
Effects of adaptations and outcomes and adherence

A brief summary of the prior research

- Adaptations are common (15% - 88% of practitioners have reported making adaptations)
- “Freezing” interventions builds on assumptions that effects of interventions only deteriorate if modified, not improve...
- Few have tested how adaptations affect outcomes
Effects of adaptations on treatment outcomes

- Equivalent effects when changes in settings, populations and format (for instance face-to-face cognitive behavior therapy delivered through Internet, parent management training delivered by non-specialist or specialist therapists).

- Culturally adapted - results from meta-analysis ranging from no effect, over inconclusive, to promising and strong effect.
Aim of the study

- to compare the effectiveness of interventions with different origins (i.e., novel programs, adopted from other contexts with or without adaptations) in two different meta-analytic data sets.

Important to keep in mind:
- Different types of programs/interventions are included.
- Pre-planned adaptations, not fidelity.
Methods

- Sweden: prevention and/or rehabilitation interventions for all population (included n=139).
- German-speaking area (Germany, Austria, Switzerland): prevention and health promotion for children and adolescents (included n=158).
- Published intervention studies between 1995 – 2012 with a randomized or non-randomized control group.
- Coded for program type
  - Three categories, five subcategories
- Analysis:
  - Calculation of effect sizes
  - Controlled for study design and sample size.
  - Hedges and Olkin’s - random effect model.
Three types of interventions

- New programs
- Replications of an established evidence-based program
- Use of an evidence-based program, but with adaptations based on local conditions – for cultural or practical reasons, and by combining new and adapted components
### Coding for program type

| Novel programs | Innovations | Completely new for the social context (i.e., country) without any reference to an international program. |
|               | Conceptually new | Completely new for the social context but with reference to an international program type. |
| Adopted programs | | Completely adopted from an international program. |
| Adopted programs | Cultural adaptations | An international program modified for cultural reasons (e.g., dropping or adding material or content). |
|                | Pragmatic adaptations | An international program modified for practical reasons (e.g., dropping or adding sessions for time reasons; availability of materials). |
|                | Eclectic adaptations | Adaptation of parts of international program combined with recently developed parts. |
RESULTS

Origin of the program

<table>
<thead>
<tr>
<th></th>
<th>German sample</th>
<th>Swedish sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novel programs</td>
<td>73%</td>
<td>69%</td>
</tr>
<tr>
<td>Adoptions without adaptations</td>
<td>11%</td>
<td>23%</td>
</tr>
<tr>
<td>Adapted programs</td>
<td>16%</td>
<td>8%</td>
</tr>
</tbody>
</table>
Results

Germany ($N = 119$)

Sweden ($N = 94$)
The main results

<table>
<thead>
<tr>
<th>Type of program construction</th>
<th>German sample $(k = 158)$</th>
<th>Swedish sample $(k = 139)$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$d+$</td>
<td>$k$</td>
</tr>
<tr>
<td>Novel programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovations</td>
<td>.27</td>
<td>116</td>
</tr>
<tr>
<td>Conceptually new</td>
<td>.20</td>
<td>44</td>
</tr>
<tr>
<td>Adoption without adaptations</td>
<td>.16</td>
<td>17</td>
</tr>
<tr>
<td>Adapted programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cultural adaptations</td>
<td>.17</td>
<td>25</td>
</tr>
<tr>
<td>Pragmatic adaptations</td>
<td>.25</td>
<td>13</td>
</tr>
<tr>
<td>Eclectic adaptations</td>
<td>.06+</td>
<td>5</td>
</tr>
<tr>
<td>TOTAL</td>
<td>.24</td>
<td>158</td>
</tr>
</tbody>
</table>

Notes. $d+$ = weighted effect-size according to the Random Effects Model. $k$ = number of studies. $+$ = Effect size does not differ significantly from zero.
RESULTS

German sample

- The highest mean effect size was shown for the sub-categories innovations \((d^+ = 0.31)\), cultural adaptations \((d^+ = 0.25)\), and conceptually new programs \((d^+ = 0.20)\).
- Adoptions \((d^+ = 0.16)\) and pragmatic adaptations as well as eclectic adaptation \((d^+ = 0.06, 0.14)\) showed lower effect sizes.

Swedish sample

- The highest mean effect size was for pragmatic adaptations \((d^+ = 0.73)\), eclectic adaptations \((d^+ = 0.59)\), innovations \((d^+ = 0.47)\), and cultural adaptations \((d^+ = 0.45)\).
- Adoptions \((d^+ = 0.26)\) showed the lowest effect sizes.
Resultat från en meta-analys av 158 tyska och 139 svenska psykosociala interventioner

- Novel programs (nya, lokala interventioner) verkar mest effektivt – Relaterad till “best fit” eller “principle of program uniqueness”
- Replikationer har sämst effekt
- Effekten av anpassningar skiljer sig mycket åt beroende på typ av anpassningar och sample
- Det kan ifrågasättas om interventioner/program ska införas utan att anpassningar övervägs
- Lämnar frågan om vad som ska anpassas och hur det ska göras obesvarad

Published German and Swedish intervention studies between 1990-2012 with a randomized/non-randomized control group.

**GERMANY (N = 158)**
- 34% RCT
- 80% universal prevention
- 90% passive controls
- 100% child and youth interventions

Based on the average means of all outcomes in the articles

**SWEDEN (N=139)**
- 89% RCT
- 12% universal prevention
- 30% passive controls
- 14% child and youth interventions

Based on the primary outcomes
Kodning och analys

Inter-coder agreement (3 broad categories) = 96.2% (German) and 92.8% (Swedish sample)

Calculation of effect sizes according to Lipsey and Wilson (2000)

Meta-analysis according to Hedges and Olkin (1985)

Because of significant heterogeneity, calculations = Random Effect Model

Controlled for study design (only RCT) and sample size (50+)
Main methodological limitations

- The study is based on the information available in the published articles.
- Limited descriptions of adaptations.
- A risk for publication bias (not all intervention studies are published).
- Small study samples, especially to sub-types of adapted programs.
- Differences between the two samples.
Conclusions

- Novel programs (new, local programs) seem most effective – may reflect best fit or is related to “principle of program uniqueness”
- Questionable if programs should be implemented without any considerations of need for adaptations.
- Leaves the question on how and what should be adapted unanswered
What role does adaptation and adherence play when a new method is implemented?

Is it evidence-based if changes are made to an EB-method?

Can we count on getting the same effects when an EB-method is applied in a new context?
What stakeholders influence the adaptation and adherence dilemma?

How?

What can they do to mitigate the dilemma?
Study - Example

- **Aim:** understand natural adaptations in social care from a line managers view
- **7 municipalities in Sweden with a variation in**
  - location
  - population size
  - previous experience working with Research & Development (R&D) and EBP based on external communication

- **28 semi-structured interviews (autumn 2012)**
  - 20 FLM in the social services area

- **Content analysis:** What, when, Whom, How and Why?
A manager’s view on adaptations

…Of course you have to make adaptations! We can never take something that has been developed in big cities like Stockholm and run with it as it is; we have to adapt it. Line manager in social services, rural areas, Northern Sweden
What

- **Content:**
  - *Integration* between different methods, tools, guidelines and practices, i.e. how different parts and tools are combined
  - Parts are omitted, added, modified

- **Delivery**
  - Frequency & Duration: number of sessions, length of sessions and treatment
  - Format: Individual vs group
  - Timing – when parts are delivered. "Seizing the moment"
  - Who delivers the method, physical environment and tools, collaborators

- **Coverage**
  - what patients that are included (groups both omitted and added)

- Keep a general approach, "spirit", rather than specific behaviors/actions
When - at different time points, and can be proactive, reactive and more or less timely

Adaptations take place at all time points –

→ In terms of which practices that are adopted
→ In the initial planning of the implementation (Proactive)
→ Throughout the implementation and sustainability process (both proactive and structured, and reactive and unstructured)
**Whom - made by different actors, at different organizational levels**

- Most adaptations are made by
  - Line managers
  - Employee’s
    - Either alone or in collaboration
- In few cases, adaptations are made in collaboration with patients
- Adaptations made together with purveyors are never mentioned
How: Different strategies and methods can be used to make adaptations

- Different level of employee involvement
- Different degrees of planned versus spontaneous adaptations
- Different leaders involvement and view on role in relation to adaptations
Why: Adaptations can be made for different reasons

More often based on needs in the organization than in order to make the method work.

- Practical:
  - Financial and other resources (physical environment, competences etc.)
  - Size of municipality (staff, patients)
  - Collaborators demands and habits
  - Other guidelines, political agendas etc.

- In relation to staff
  - To increase personal fit (match to experience and previous work)
  - To make it less challenging/stressful (on a personal level)

- In relation to patients’
  - Their needs, goals and wishes and traditions
  - To seize the moment
Why adhere

- To be able to draw conclusion about effects
- To decrease individual variation
- To improve the quality of work
Health care professionals’ reasons for adaptations of national guidelines

Reasons for adaptations
Proportion of described reasons for adaptations (n = 52)

The guidelines at the workplace are more rigorous than the national equivalent
- Lack of adequate staff or space
- Lack of knowledge
- To facilitate the work in general
- Lack of economic compensation
- Lack of routines at the workplace
- Lack of interest from the patients
- Lack of time
- Specific needs and capabilities of the patients

Summary

- Line managers have great influence in how EBM is translated into practice
- In addition to adapting the content in terms of omission, addition, or modification, *integrations* between different methods are frequent
- Core components are seldom discussed in relation to adaptations
- Both planned and spontaneous adaptations are often made, within the same organization. It differs between leaders on their view of whether this is problematic or good
- WHY adaptations are made seem very important for whether the adaptations are functional, i.e. leading to a better implementation and performance outcome
Thanks for your attention!