Global Perspectives on HIV Prevention and Adherence

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Continuum 2025 • June 10-12, 2025 • San Juan

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Antiretroviral therapy adherence in the era of universal test and treat: a hybrid systematic-narrative literature review of global evidence.

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Interventions Promoting Adherence

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Background

- With uninterrupted access to effective oral ART & use at recommended intervals over sustained periods→ Life saving and public health benefits

Evidence Base

- 3 decades of work
- Dramatic changes in oral regimens and improvements in access
- U=U and immediate ART start have influenced the context and lived experiences with adherence over the past decade

HYBRID SYSTEMATIC-NARRATIVE REVIEW

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Goal: Describe the published literature on ART interventions since 2015

- **What kinds of intervention approaches and strategies are being evaluated? With whom and where on what?**
- **Which are ‘promising’? Which appear to have an impact on VL?**
- **What insights can be drawn from the recent literature?**

Hybrid Systematic Narrative Review

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Method

- PubMed, Scopus, and Web of Science using PRISMA guidelines for peer-reviewed intervention studies published **Jan 2015-2024**:
- in English
- included people ≥12 years taking ART
- had a comparison condition and measured adherence
- focused in some way on supporting oral ART adherence

Method

- Search results exported to Covidence
- Systematic process to identifying studies for inclusion (double coded team of 9)
  - Title and abstract review
  - Full text review
  - Data extraction
  - Summary of code applications (SPSS)
- Narrative review
  - Qualitative summary of interventions
  - Insights around scope and breadth of evidence base

Hybrid Systematic Narrative Review

DATA EXTRACTION

- Study features
- Location
- Population(s)
- Primary and secondary outcomes
- Impact on adherence

Hybrid Systematic Narrative Review

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Promising on adherence-related outcome

Significant effect on adherence related outcome

Promising on VL outcome

Significant on VL outcome

Hybrid Systematic Narrative Review

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DATA EXTRACTION

Intervention Features (14 + Other from phase 1 of review)

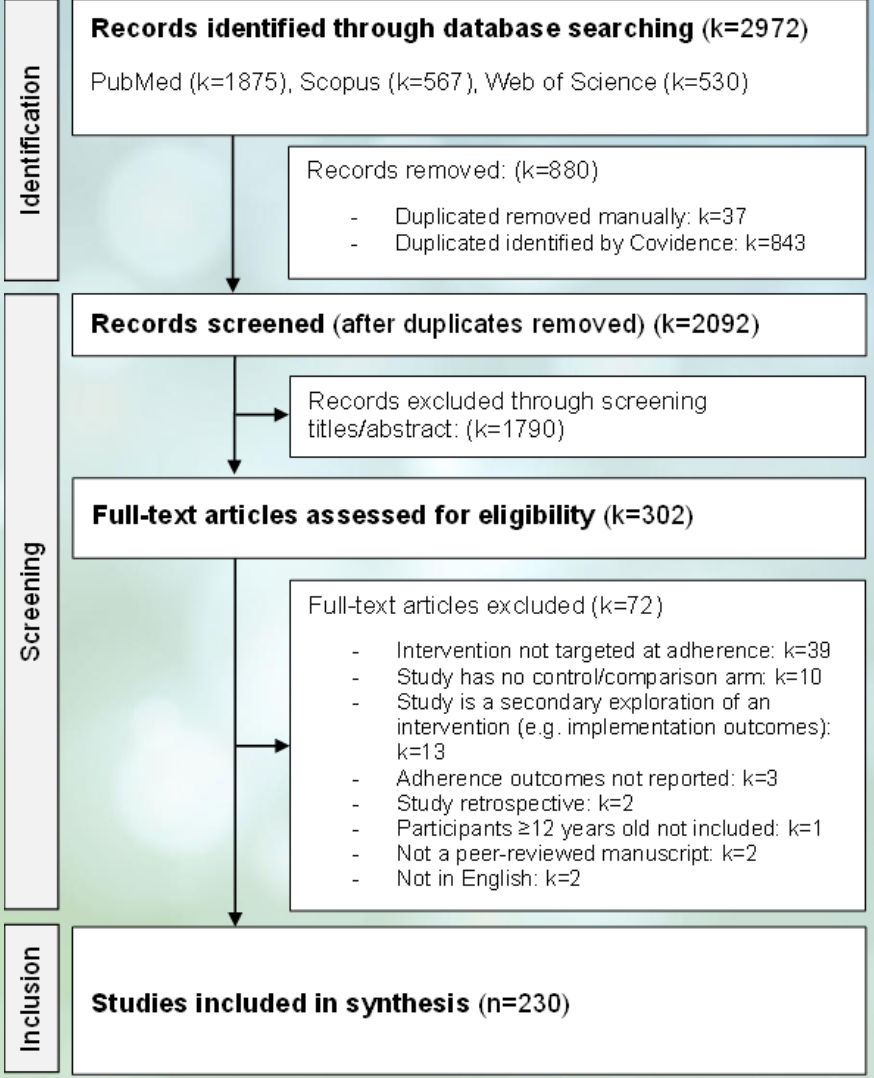
- Economic
- eHealth
- Alcohol/Drug use
- Adherence club
- Adherence education
- Adherence counseling
- Counseling
- Peers
- EDM
- DOT
- Schedule/Dispensation
- Simplification
- Food security
- Task Shifting
- Other

2972

2092

302

230



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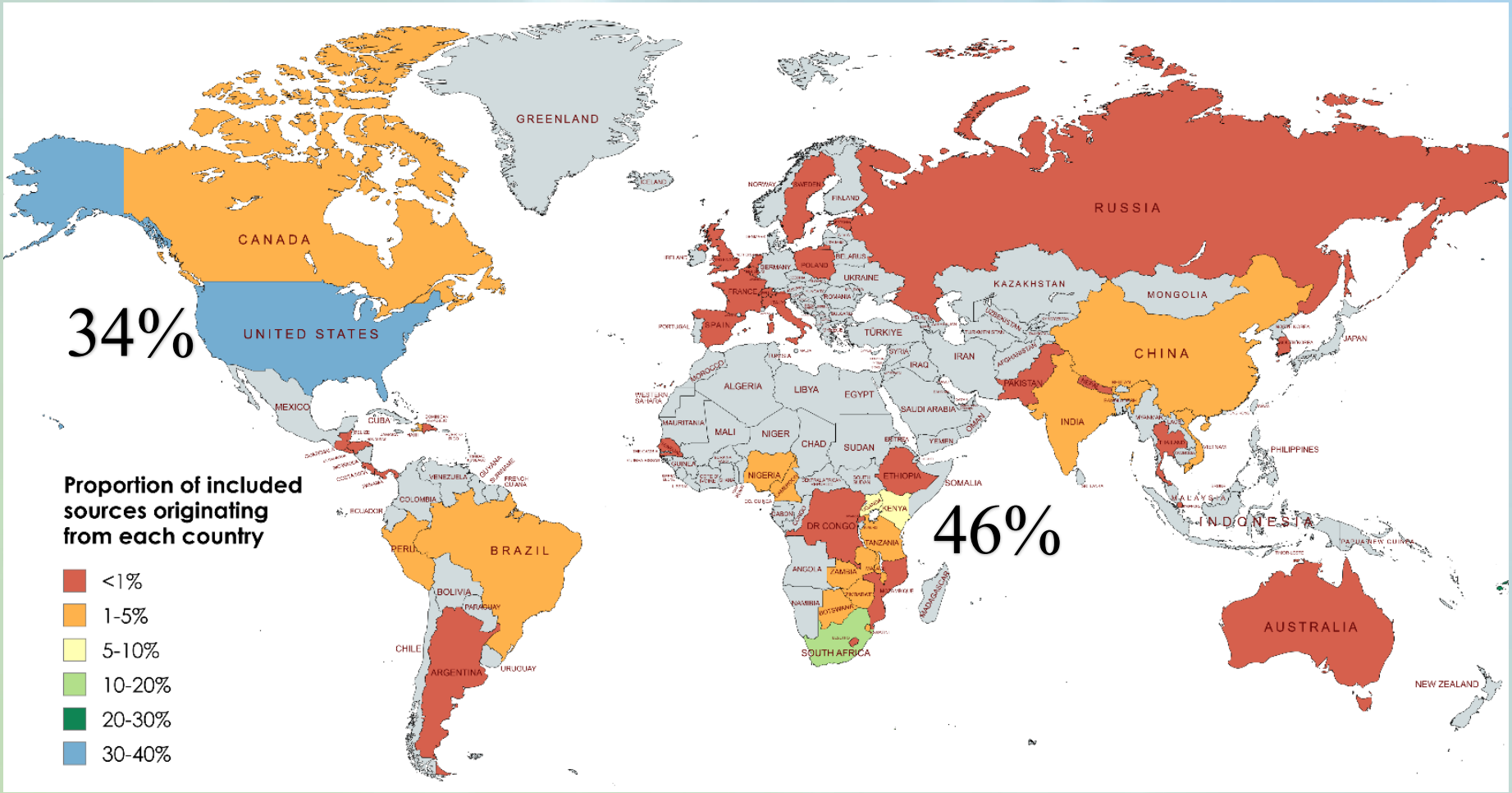
Type of study

- 94% used random assignment to condition (k=215)
- Single arm (pre/post) uncommon (3%, k=7)
- 29% (k=66) were self-described as pilot studies
- Increase in cluster randomized in last 3 years (k=30)

Sample Size

- Total number of participants across all=97,037
- Sample sizes ranged from 6 to 16,208
- Non-cluster trials→ mdn 144 (IQR 63, 341)
- Cluster trials→ mdn 699 (IQR 358, 1302)
- Pilot trials→ mdn 53 (IQR 33, 90)
- Estimate that over half were powered (56%, k=128)


34%
46%
Proportion of included sources originating from each country
<1%
1-5%
5-10%
10-20%
20-30%
30-40%
GREENLAND
CANADA
UNITED STATES
MEXICO
CUBA
VENEZUELA
COLOMBIA
ECUADOR
PERU
BRAZIL
BOLIVIA
PARAGUAY
CHILE
ARGENTINA
URUGUAY
RUSSIA
KAZAKHSTAN
MONGOLIA
CHINA
JAPAN
INDIA
PHILIPPINES
INDONESIA
AUSTRALIA
NEW ZEALAND
NORWAY
SWEDEN
FINLAND
IRELAND
GERMANY
POLAND
BELARUS
UKRAINE
FRANCE
ROMANIA
SPAIN
PORTUGAL
TÜRKIYE
SYRIA
IRAQ
IRAN
AFGHANISTAN
PAKISTAN
UZBEKISTAN
TURKMENISTAN
MOROCCO
ALGERIA
LIBYA
EGYPT
SAUDI ARABIA
OMAN
YEMEN
MAURITANIA
MALI
NIGER
CHAD
SUDAN
ERITREA
NIGERIA
ETHIOPIA
SOMALIA
GUINEA
GABON
DR CONGO
KENYA
TANZANIA
ANGOLA
ZAMBIA
NAMIBIA
BOTSWANA
MADAGASCAR
SOUTH AFRICA

Populations (inclusion)

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Well represented

- Nearly half (44%, k=102/230) evaluated interventions with **general clinic populations**
- **Youth** (22%)
- About 10% included
  - **Pregnant** and **postpartum** people (10%)
  - People with **mental health challenges** (10%)
  - People who use **substances** (13%)

Less represented

- About 5% or less sought to intervene with...
  - **GBMSM** (6%)
  - People with **food** and/or **economic insecurity** (4%)
  - People involved in **justice system** (4%)
  - People engaged in **sex work** (1%)
  - **Hospitalized** individuals (1%)
  - **Transgender** people (1%)

Experience with ART

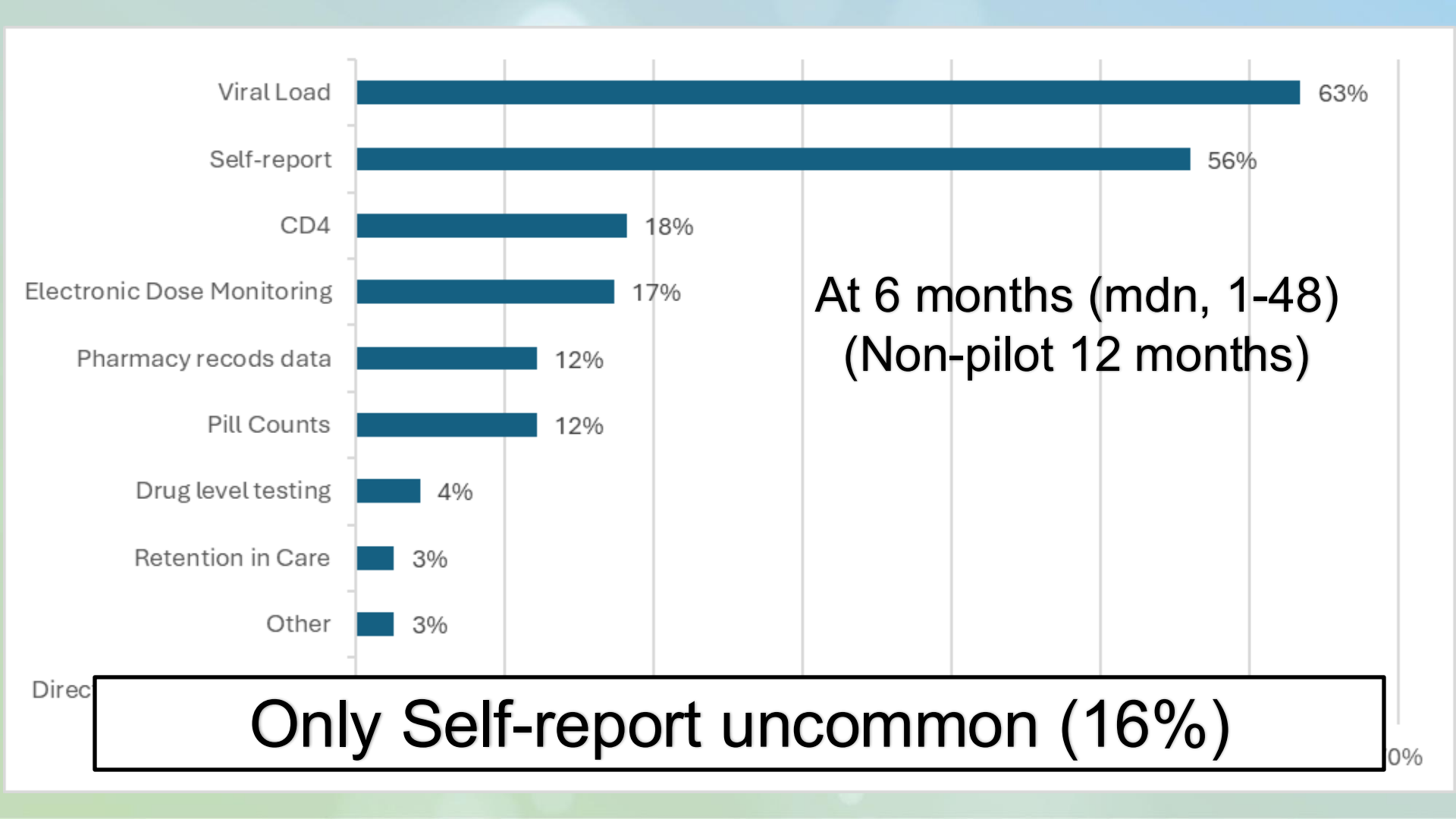
Treatment experienced (k=118/230, 51%)

Treatment naïve (k=32/230, 14%)

Adherence Challenged

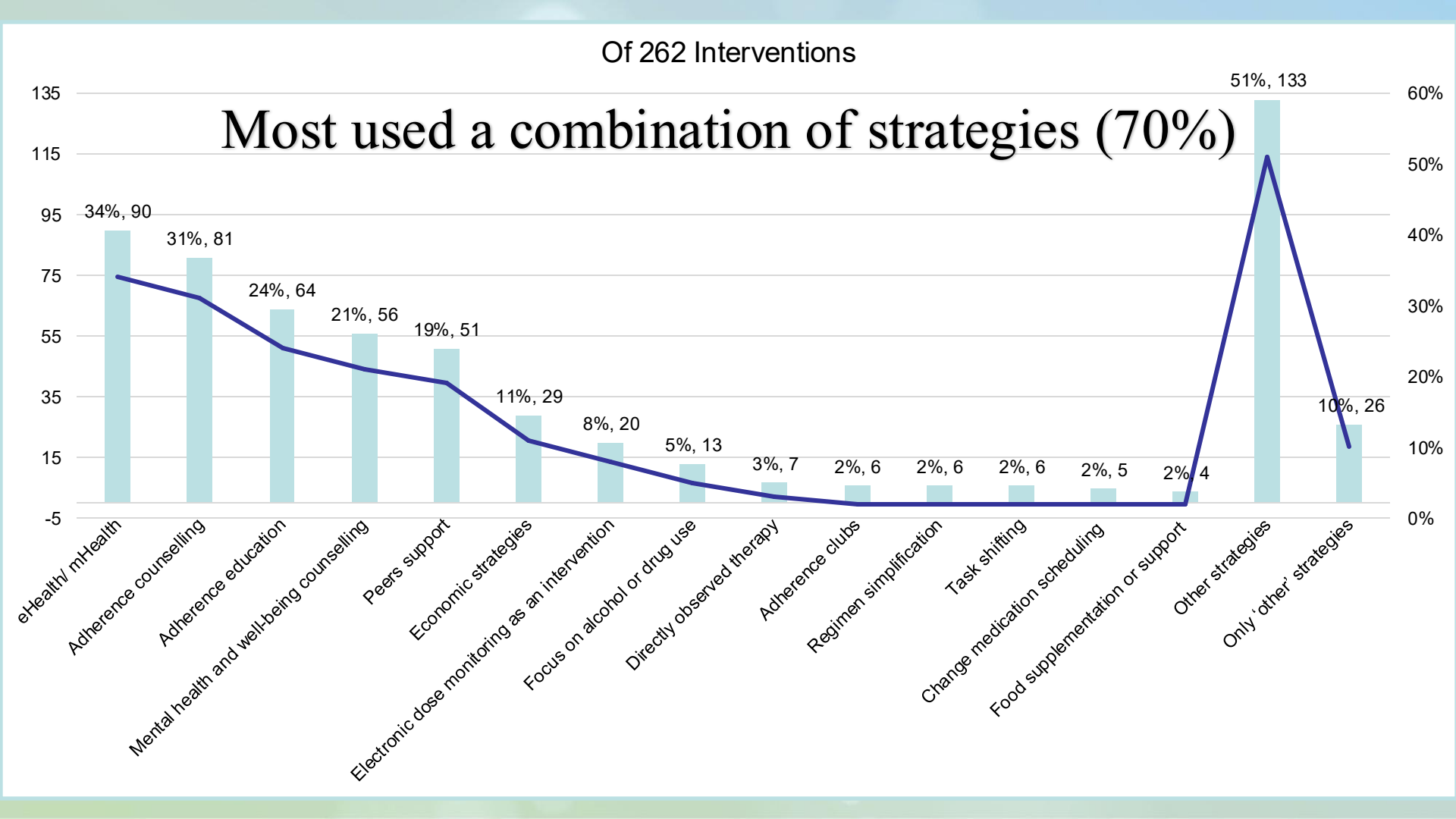
Known adherence challenges (k=44/230, 19%)

Lack of VLS (k=39/230, 17%)


Viral Load
63%
Self-report
56%
CD4
18%
Electronic Dose Monitoring
17%
Pharmacy recods data
12%
Pill Counts
12%
Drug level testing
4%
Retention in Care
3%
Other
3%
Direc
0%
At 6 months (mdn, 1-48)
(Non-pilot 12 months)
Only Self-report uncommon (16%)

Intervention strategies

- 262 interventions
- Each coded for presence/absence of a-priori strategies

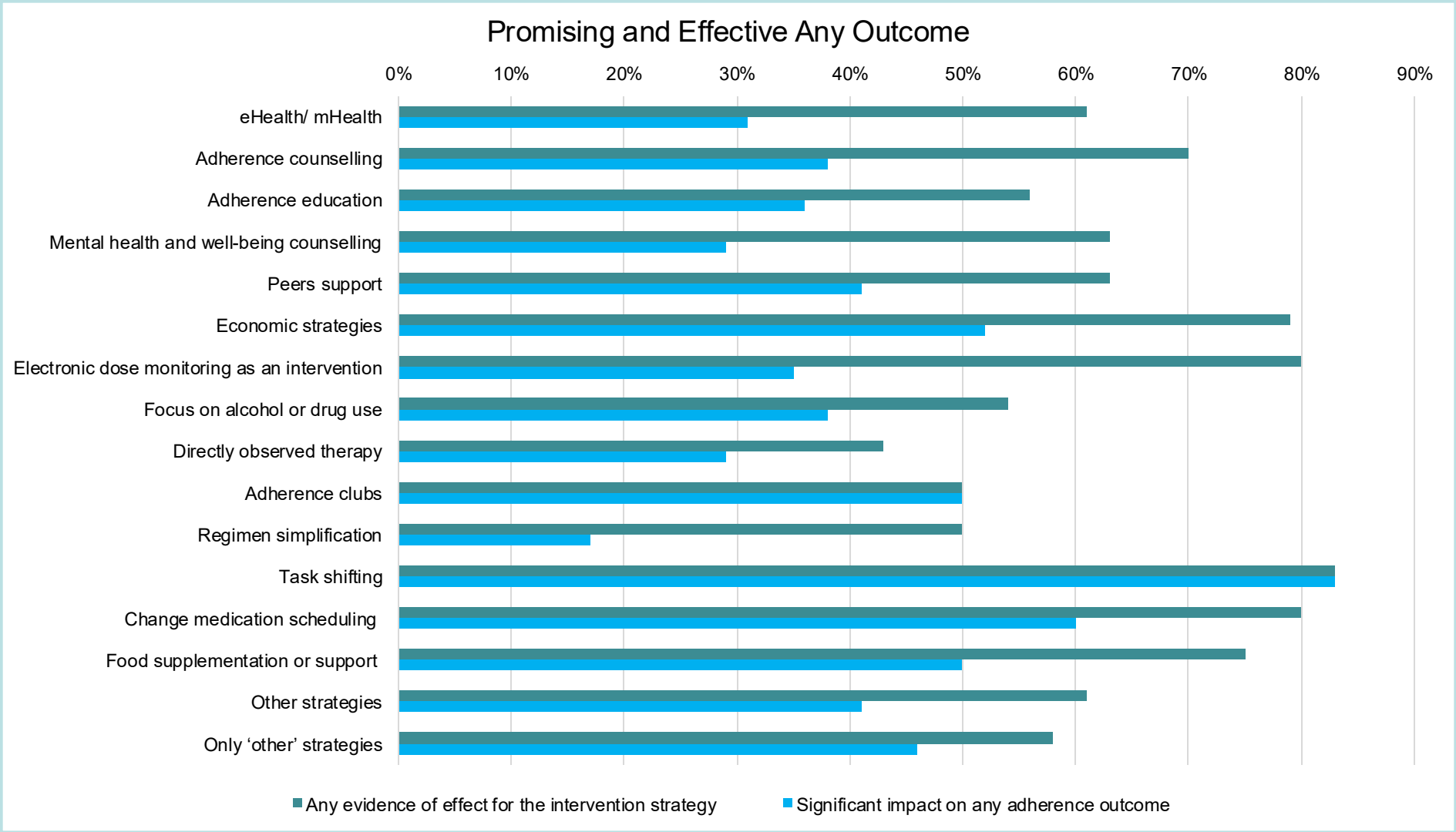

Of 262 Interventions
Most used a combination of strategies (70%)
135
115
95
75
55
35
15
-5
60%
50%
40%
30%
20%
10%
0%
34%, 90
31%, 81
24%, 64
21%, 56
19%, 51
11%, 29
8%, 20
5%, 13
3%, 7
2%, 6
2%, 6
2%, 6
2%, 5
2%, 4
51%, 133
10%, 26
eHealth/ mHealth
Adherence counselling
Adherence education
Mental health and well-being counselling
Peers support
Economic strategies
Electronic dose monitoring as an intervention
Focus on alcohol or drug use
Directly observed therapy
Adherence clubs
Regimen simplification
Task shifting
Change medication scheduling
Food supplementation or support
Other strategies
Only 'other' strategies

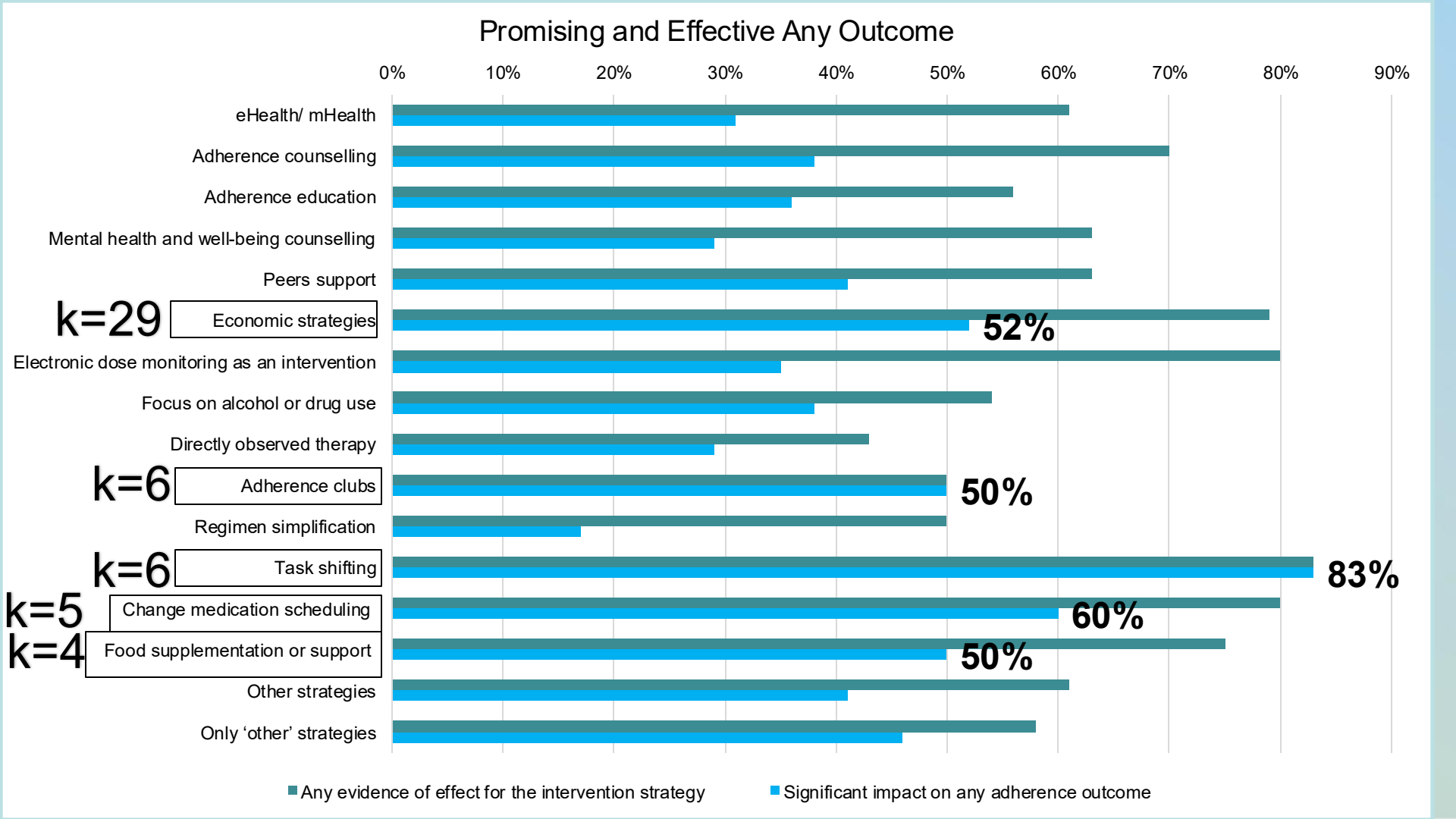
Impact on Adherence

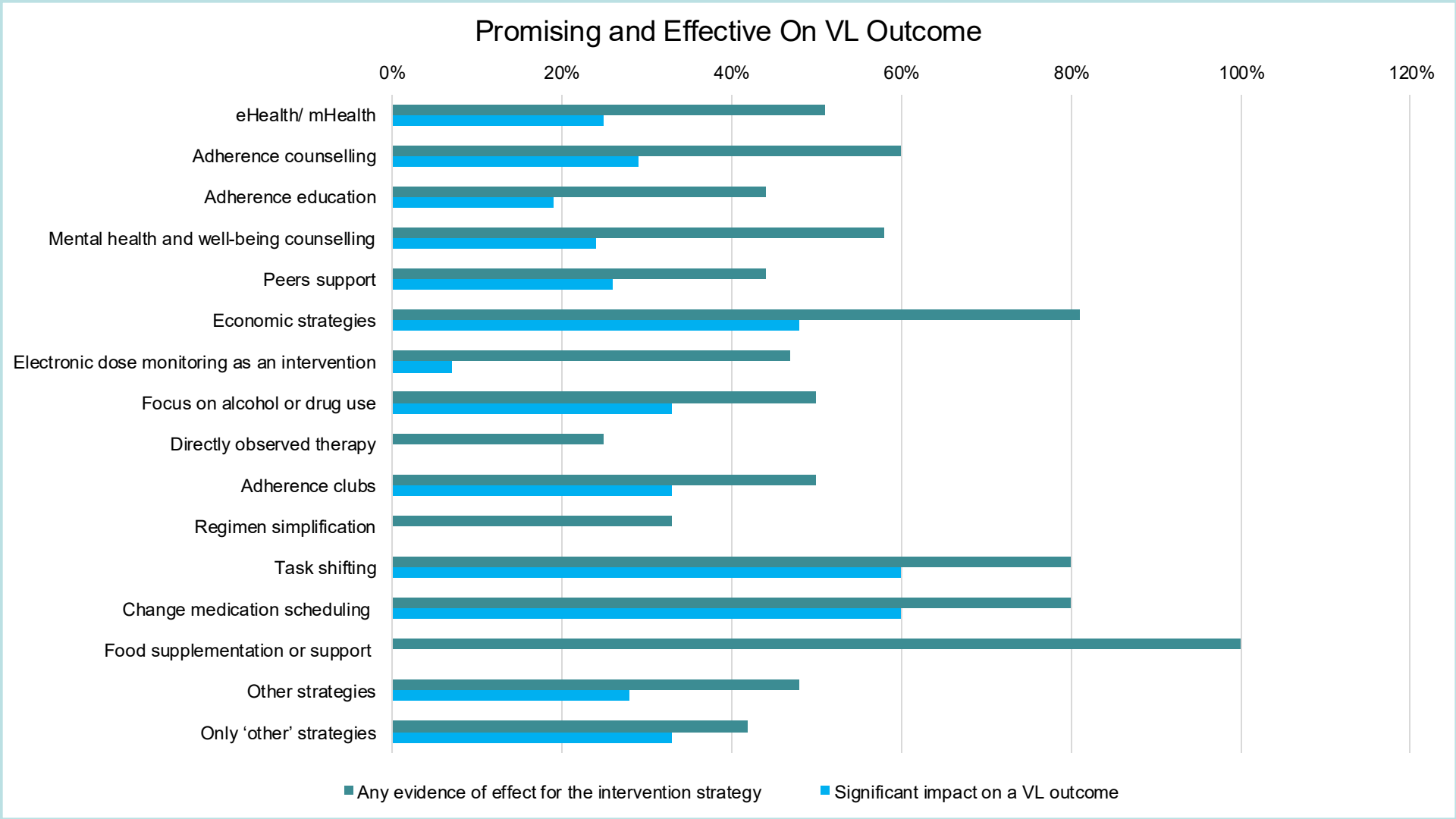
- 61% had/reported supportive outcomes on adherence-related variables
  - 37% significant

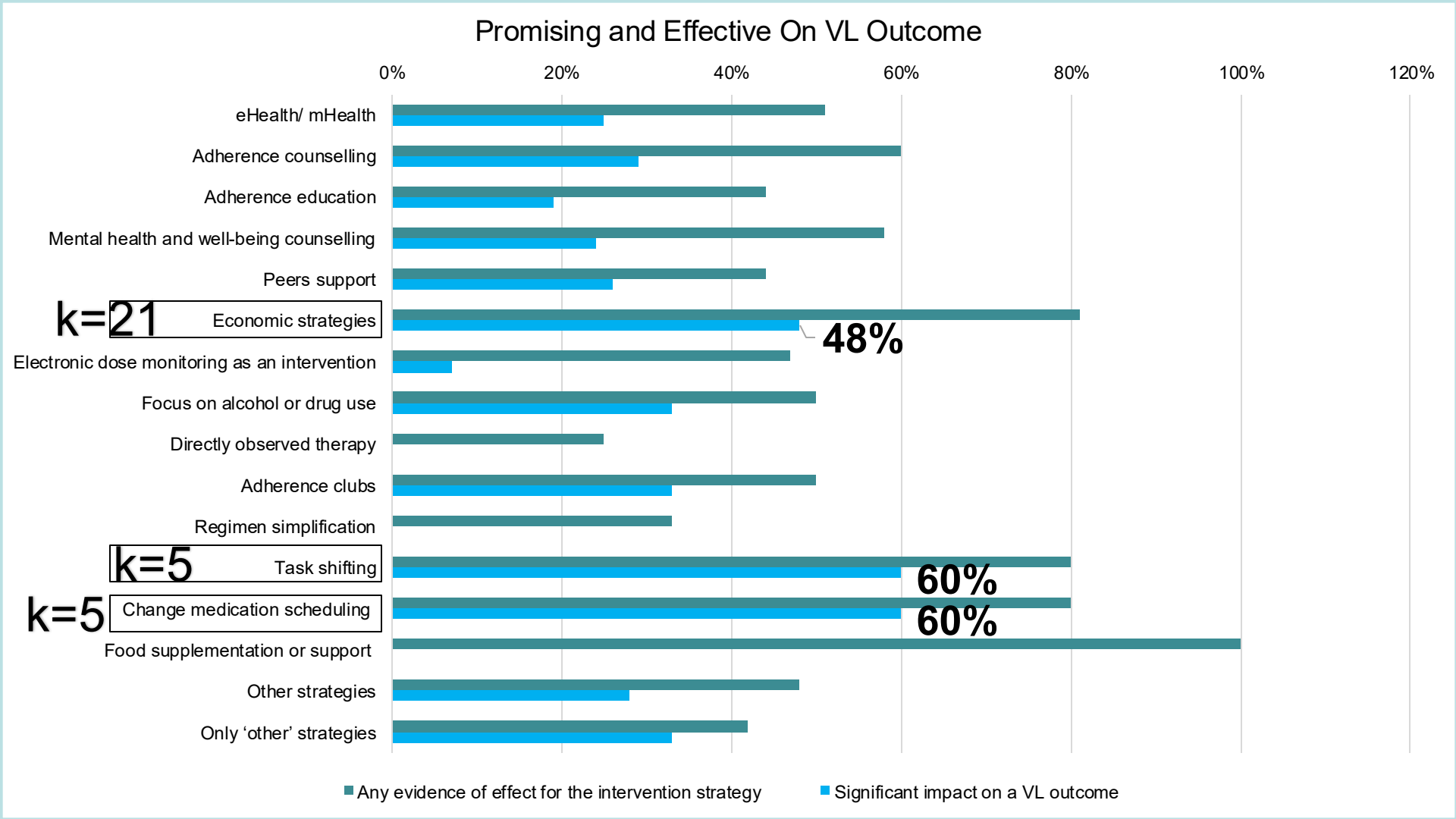
Impact on VL

- 72% included a VL based outcome
  - 52% had/reported supportive outcomes on viral load measure
  - 28% significant


Promising and Effective Any Outcome
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
eHealth/ mHealth
Adherence counselling
Adherence education
Mental health and well-being counselling
Peers support
Economic strategies
Electronic dose monitoring as an intervention
Focus on alcohol or drug use
Directly observed therapy
Adherence clubs
Regimen simplification
Task shifting
Change medication scheduling
Food supplementation or support
Other strategies
Only 'other' strategies
Any evidence of effect for the intervention strategy
Significant impact on any adherence outcome


Promising and Effective Any Outcome
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
eHealth/ mHealth
Adherence counselling
Adherence education
Mental health and well-being counselling
Peers support
k=29
Economic strategies
52%
Electronic dose monitoring as an intervention
Focus on alcohol or drug use
Directly observed therapy
k=6
Adherence clubs
50%
Regimen simplification
k=6
Task shifting
83%
k=5
Change medication scheduling
60%
k=4
Food supplementation or support
50%
Other strategies
Only ‘other’ strategies
Any evidence of effect for the intervention strategy
Significant impact on any adherence outcome


Promising and Effective On VL Outcome
0%
20%
40%
60%
80%
100%
120%
eHealth/ mHealth
Adherence counselling
Adherence education
Mental health and well-being counselling
Peers support
Economic strategies
Electronic dose monitoring as an intervention
Focus on alcohol or drug use
Directly observed therapy
Adherence clubs
Regimen simplification
Task shifting
Change medication scheduling
Food supplementation or support
Other strategies
Only 'other' strategies
Any evidence of effect for the intervention strategy
Significant impact on a VL outcome


Promising and Effective On VL Outcome
0%
20%
40%
60%
80%
100%
120%
eHealth/ mHealth
Adherence counselling
Adherence education
Mental health and well-being counselling
Peers support
k=21
Economic strategies
48%
Electronic dose monitoring as an intervention
Focus on alcohol or drug use
Directly observed therapy
Adherence clubs
Regimen simplification
k=5
Task shifting
60%
k=5
Change medication scheduling
60%
Food supplementation or support
Other strategies
Only 'other' strategies
Any evidence of effect for the intervention strategy
Significant impact on a VL outcome

HYBRID SYSTEMATIC-NARRATIVE REVIEW

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Goal: Describe the published literature on ART interventions since 2015

- **What kinds of intervention approaches and strategies are being evaluated? With whom and where on what?**

eHealth, well-being, structural/service related
With general clinic populations
Largely from Africa and US
On VL and self-report

HYBRID SYSTEMATIC-NARRATIVE REVIEW

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159 had some support on adherence and 87 some support on VL

98 had significant outcomes on an adherence variable
47 had significant outcomes on VL ***(economic, task shifting, increasing dispensation)***

- **Which are 'promising'? Which appear to have an impact on VL?**
- **What insights can be drawn from the recent literature?**

Decrease burden of care

Ease of access and point of contact- task-shifting
Increase amount of medication dispensed [eHealth]

Focus on **WHOLE person/WHOLE communities** (SDOH)
Economic supports [Food security, well-being]

Explore alternatives to 1 size fits most
What to intervene with depends on current systems of care- gaps, needs, and resources can vary at many levels

- **What insights can be drawn from the recent literature?**

Limitations

- Systematic-Narrative review not a meta analysis
- Intervention features are not equally represented in the literature
- Coding has a degree of error
- Qualitative data not included
- Ongoing analyses

THANK YOU

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To the 97,037 PWH around the world that contributed their time, effort and insights to creating this evidence base on adherence interventions

To the 230 authors and study teams that developed, created, implemented, and evaluated novel ways to support people with oral ART adherence