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# **Specifying Self-regulation Intervention Techniques in the Context of Healthy Eating**

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# Overview

- Identifying behaviour change techniques explaining intervention effectiveness
  - A taxonomy of behaviour change techniques
  - Results from a systematic review focusing on techniques used in Healthy Eating (and Physical Activity) Interventions
  - Conclusions
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# Control Theory and Self Regulation

## Carver & Scheier (1982)

*Psychological Bulletin*

- based partially on test-operate-test-exit (TOTE) routines,
- involves comparing performance of the self to a set standard,
- views behaviours as goal-driven and feedback controlled,
- includes disengagement if outcome expectancies regarding goal attainment are low.

*Carver, C. S., & Scheier, M. F. (1981).  
Attention and self-regulation:  
A control theory approach to human behavior.  
New York: Springer-Verlag.*

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## Five Core Self Regulatory Techniques

1. Setting a goal (What do I want to do?)
  2. Specifying goals as contextualised actions,  
including planning particular action sequences.  
(What exactly will I do, when and where?)
  3. Self Monitoring (What am I doing?)
  4. Feedback (How well am I doing?)
  5. Reviewing a goal (in light of monitoring and feedback)  
(What do I want to do differently?)
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# 26 theory-linked behavior change techniques I

## Abraham & Michie (2008)

*Health Psychology*

### Technique

### Illustrative Theory

- |  |                         |
|--|-------------------------|
| 1. Provide information about behavior-health link. |                         |
| 2. Provide information on consequences             | TRA/SCT                 |
| 3. Provide information about others' approval      | TRA                     |
| 4. Prompt intention formation/ goal setting        | TRA/ Control Theory     |
| 5. Prompt barrier identification                   | Social Cognitive Theory |
| 6. Provide general encouragement                   | Social Cognitive Theory |
| 7. Set graded tasks                                | Social Cognitive Theory |
| 8. Provide instruction                             | Social Cognitive Theory |
| 9. Model/ demonstrate the behavior                 | Social Cognitive Theory |
| 10. Prompt specific goal setting                   | Control Theory          |
| 11. Prompt review of behavioral goals              | Control Theory          |
| 12. Prompt self-monitoring of behavior             | Control Theory          |
| 13. Provide feedback on performance                | Control Theory          |

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## 26 theory-linked behavior change techniques II

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|---|----------------|
| 14. Provide contingent rewards                  | Operant Theory |
| 15. Teach to use prompts/ cues                  | Operant Theory |
| 16. Agree behavioral contract                   | Operant Theory |
| 17. Prompt practice                             | Operant Theory |
| 18. Use follow up prompts                       |                |
| 19. Provide opportunities for social comparison |                |
| 20. Plan social support/ social change          |                |
| 21. Prompt identification as role model         |                |
| 22. Prompt self talk                            |                |
| 23. Relapse prevention                          |                |
| 24. Stress management                           |                |
| 25. Motivational interviewing                   |                |
| 26. Time management                             |                |

Found to have good inter-coder reliability

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## Present Study

- Identified techniques included in HE (and PA) interventions...
  - Compared only intervention versus control differences.
  - Controlled for control group content
  - Identified techniques associated with effectiveness
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# **Systematic Review of Self-Regulatory Interventions Promoting Healthy Eating (HE) or Physical Activity (PA)**

- among adults living in the community
- experimental or quasi-experimental designs
- using use cognitive or behavioural change strategies
- using objective or standardised/ validated self-report outcome measures
- evaluated in peer-reviewed journals from 1990 to 2007.

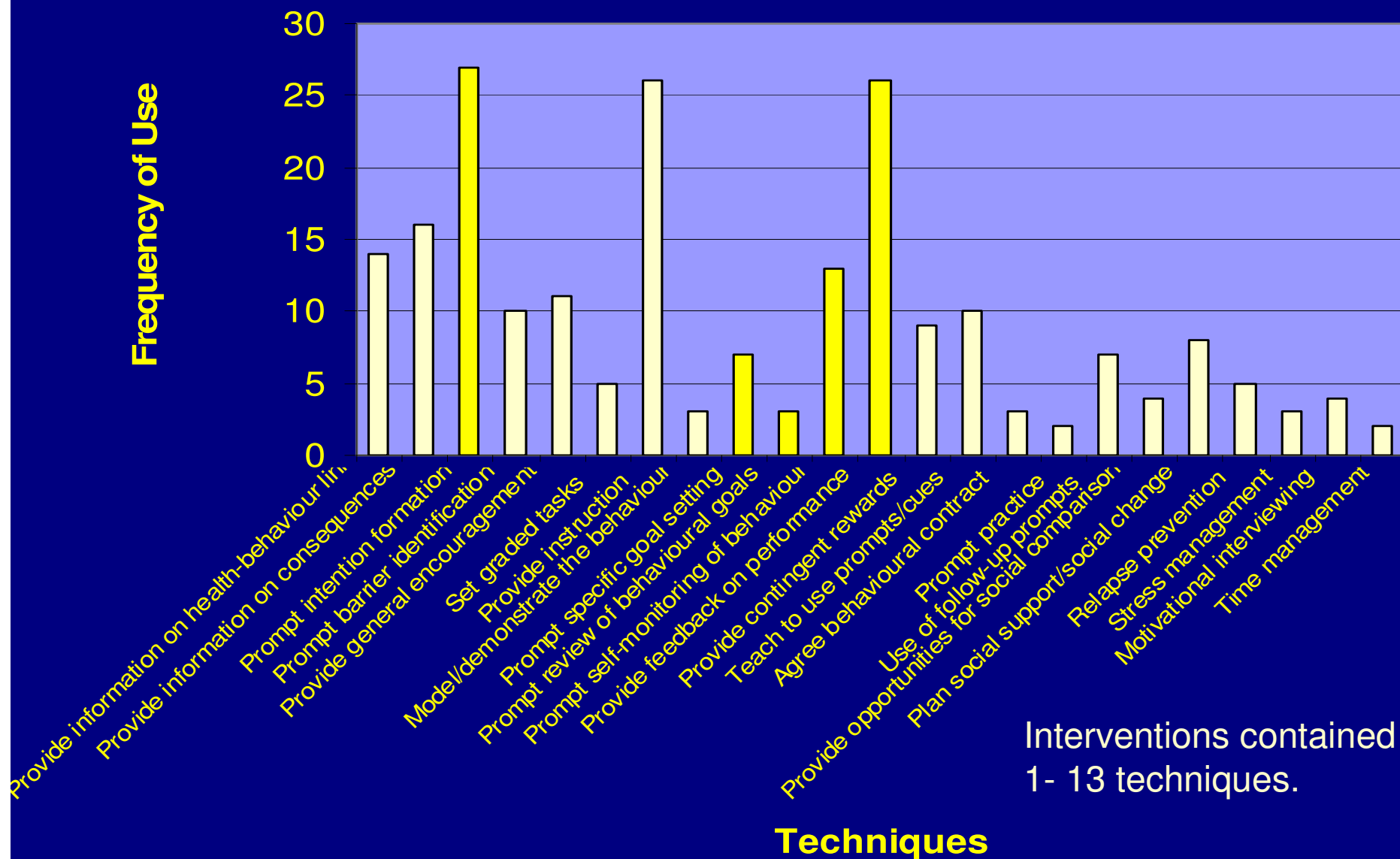
**40 HE evaluations and 44 PA: k=84 (N=28,838)**

Michie, S., Abraham, C., Whittington, C.,  
McAteer, J & Gupta, S. (in preparation)

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# Use of Techniques in 40 HE Interventions I

23/26 techniques identified. Range 2-27

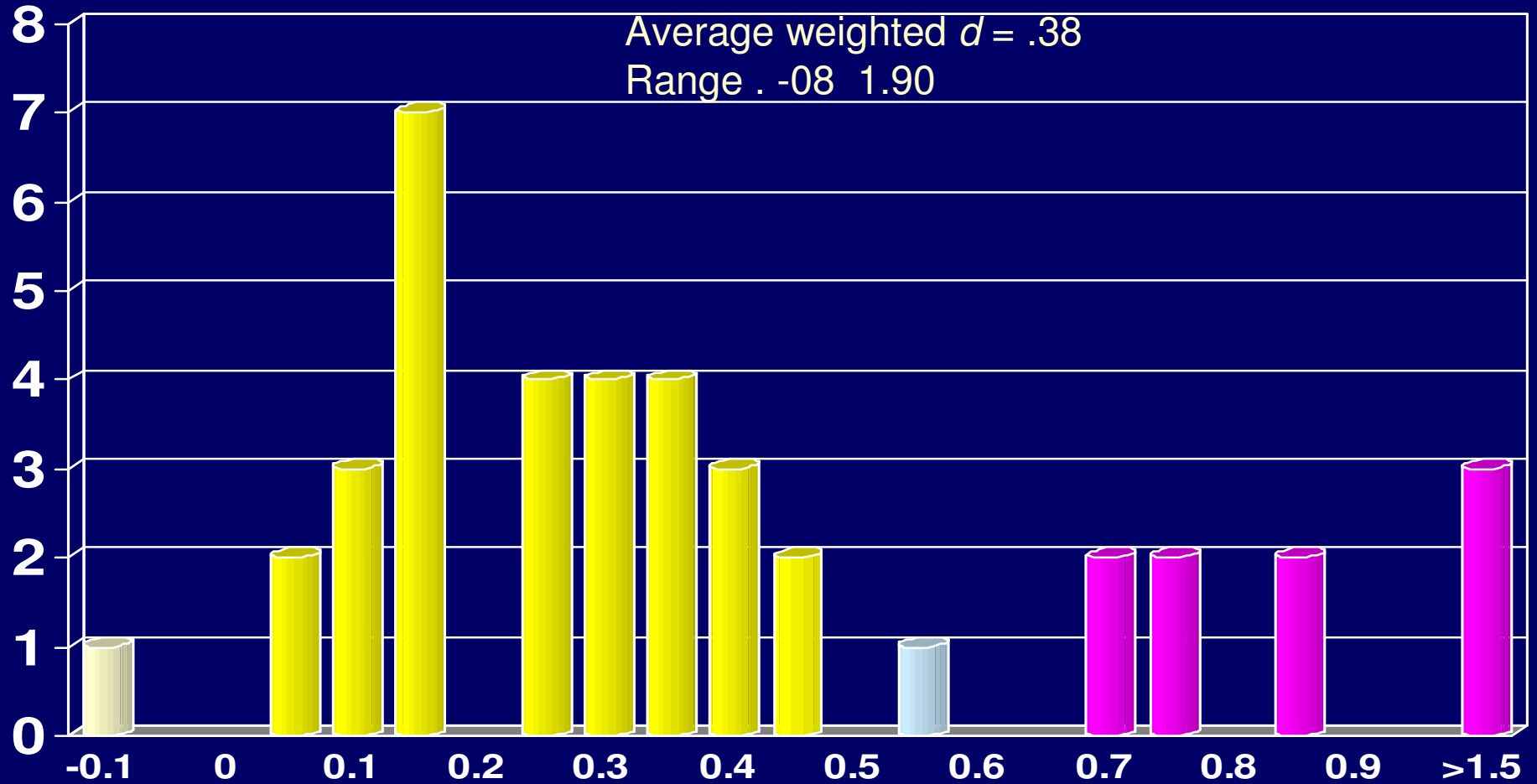


## Use of Techniques in 40 HE Interventions II

<u>Technique</u>	<u>No of interventions using technique</u>
Prompt intention/ goal formation	27 (67.5%)
Provide feedback on performance	26 (67.5%)
Provide instruction	26 (67.5%)
Provide information on consequences	16 (40%)
Provide information on health-behaviour link	14 (35%)
Prompt self-monitoring of behaviour	13 (32.5%)
Set graded tasks	11 (27.5%)
Provide general encouragement	11 (27.5%)
Prompt barrier identification	10 (25%)
Teach to use prompts and cues	10 (25%)

# Effectiveness of 40 HE Interventions

$d = .20$  is small,  $d = .50$  is medium,  $d = .80$  is large



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## HE Intervention Effectiveness Moderated by Technique Inclusion

average weighted  $d = .38$  with substantial heterogeneity ( $N=40$ )

Prompt self monitoring plus at least one SR tech. 17.3%

12 included  $d = .72$

28 not included  $d = .24$

Self Reg' Focus (SM plus + < 3 non-SR tech's) 27.0%

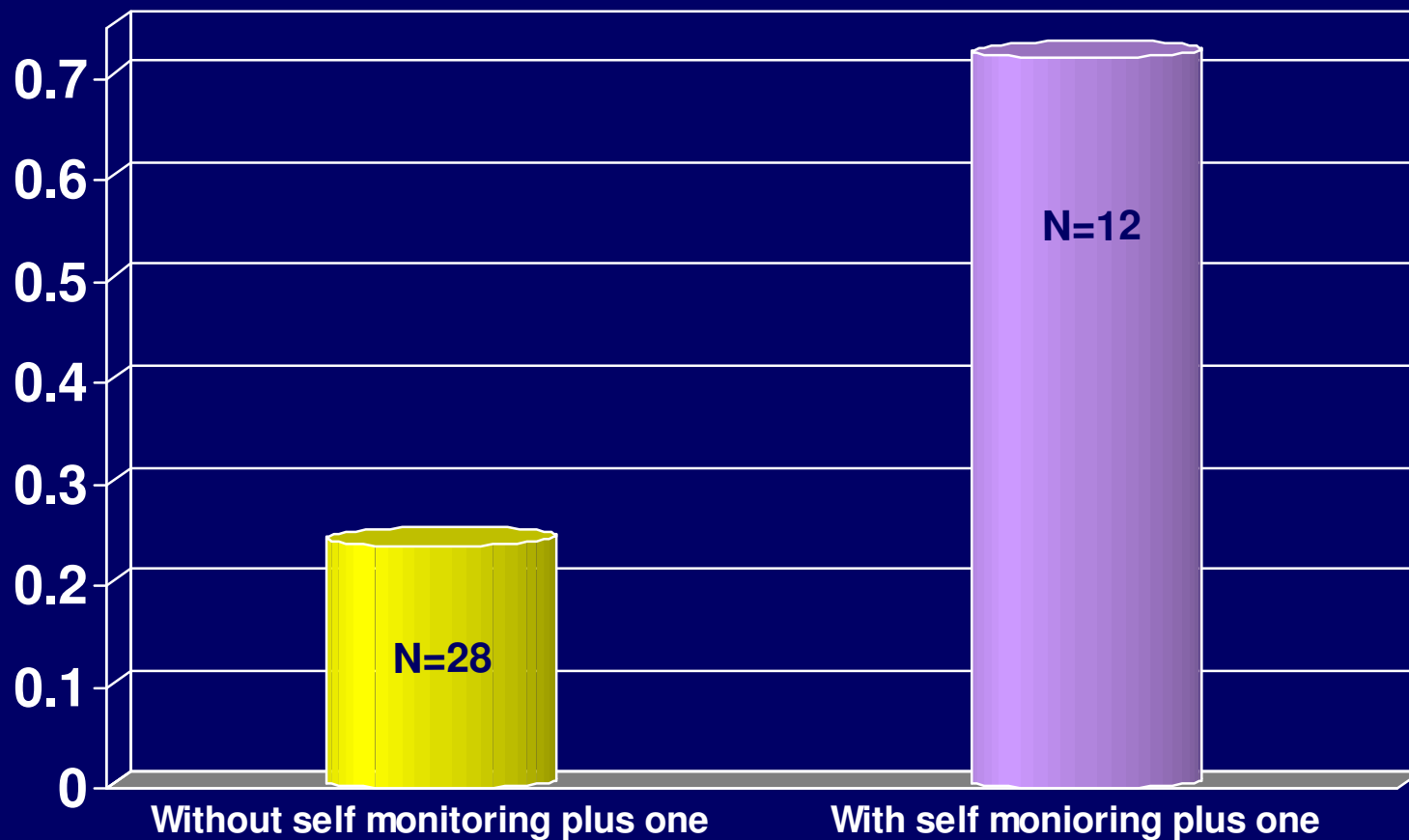
5 included  $d = .77$

35 not included  $d = .30$

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# Effectiveness of HE Interventions Including Self Monitoring + One Other SR Technique

$d = .20$  is small,  $d = .50$  is medium,  $d = .80$  is large



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# Overall Self Regulatory Intervention Effectiveness I

- No difference in effectiveness of HE and PA interventions
  - ... or in moderators of effectiveness.
  - Heterogeneity in effectiveness was NOT explained by...
    - country, setting (e.g., worksite vs community),  
mode (e.g., individual vs group), duration,  
person delivering intervention, target audience,  
length of follow up - or number of techniques.
  - BUT, again, inclusion of self regulatory techniques matters..
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## Overall Self Regulatory Intervention Effectiveness II

average weighted  $d = .37$  with substantial heterogeneity ( $N = 84$ )

Prompt self monitoring plus at least one SR tech. 16.1%

28 included  $d = .60$

56 not included  $d = .26$

Self Reg' Focus (SM plus + < 3 non-SR tech's) 22.9%

9 included  $d = .68$

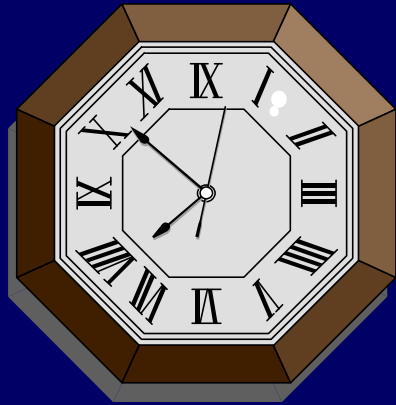
75 not included  $d = .30$

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## Conclusions

1. Inclusion of self monitoring plus at least one other core self regulatory technique (i.e., setting goal, specifying the goal, receiving feedback on performance and reviewing the goal) was associated with greater effectiveness of HE (and HE+PA) interventions.
  2. Enhancing self regulatory skills is important to HE.
  3. Identification of intervention content in terms of techniques employed and use of meta analysis is critical to understanding variability in effectiveness.
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***Thank You!***

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see too

<http://www.interventiondesign.co.uk/>

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