

# Commonalities and Differences in Measuring Maintenance of Behavior Change



# Acknowledgements

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- HMC investigators
- HMC Resource Center

# Collaborating Sites

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- Friends Research Institute (Roll)
- HealthPartners (Martinson)
- University of Tennessee Health Science Center (Klesges)
- Oregon Health & Science University (Elliot)
- Treatment Research Institute (Kirby)
- University of Illinois Chicago (Hughes)
- University of Rochester (Williams)

# Methods

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- Reached consensus on definitions of maintenance and maintenance-related constructs
- Used definitions to develop a survey to examine conceptualization and operationalization of maintenance
- Conducted a web-based survey of 16 HMC intervention studies using definitions of constructs

# Definition of Maintenance

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- *Sustained behavior during the period of observation and after the intervention has stopped that meets a threshold believed to be necessary to improve health or well being within a given population*

# Definition of Adherence

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- *Protocol-related behaviors, such as attendance and participation in intervention-related activities*

# Other Maintenance-Related Constructs

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- ❑ Grace Period: a window of time during which lack of adoption of the behavior was not counted as a failure
- ❑ Relapse: a period of interruption of regular sustained behavior after its initiation and maintenance
- ❑ Reactivation: the resumption of the sustained behavior following a period of relapse

# Maintenance Measures

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	<b>Total</b>	<b>Physical Activity</b>	<b>Diet/ Nutrition</b>	<b>Tobacco Dependence</b>	<b>Substance Abuse</b>
	<b>16 Studies</b>	<b>N=6</b>	<b>N=6</b>	<b>N=6</b>	<b>N=4</b>
<b>Tracking Maintenance</b>					
<i>Yes</i>	22	6	6	6	4
<i>No</i>	0	0	0	0	0
<b>Conceptual definition</b>					
<i>Criterion</i>	12	4	2	5	1
<i>% increase</i>	10	4	3	2	1
<i>Continuum</i>	10	0	4	2	4
<i>Other definition</i>	1	0	1	0	0

# Maintenance Measures

	<b>Total</b>	<b>Physical Activity</b>	<b>Diet/ Nutrition</b>	<b>Tobacco Dependence</b>	<b>Substance Abuse</b>
	<b>16 Studies</b>	<b>N=6</b>	<b>N=6</b>	<b>N=6</b>	<b>N=4</b>
<b>Operationalization of Maintenance Variable</b>					
<i>Dichotomous</i>	6	2	2	2	0
<i>Ordinal</i>	6	2	2	1	1
<i>Continuous</i>	19	5	6	4	4
<b>Type of Outcome</b>					
<i>Intermediate</i>	2	1	1	0	0
<i>Primary</i>	6	1	2	3	0
<i>Both</i>	13	4	3	2	4
<i>Other</i>	1	0	0	1	0

# Maintenance Measures

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	<b>Total</b>	<b>Physical Activity</b>	<b>Diet/ Nutrition</b>	<b>Tobacco Dependence</b>	<b>Substance Abuse</b>
	<b>16 Studies</b>	<b>N=6</b>	<b>N=6</b>	<b>N=6</b>	<b>N=4</b>
<b>Level of Maintenance Variable</b>					
<i>Individual</i>	22	6	6	6	4
<i>Family</i>	0	0	0	0	0
<i>Organizational</i>	3	1	2	0	0
<i>Environmental</i>	3	1	2	0	0
<i>Policy</i>	1	0	1	0	0
<i>Other</i>	1	1	0	0	0

# Maintenance Measurement Issues

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	<b>Total</b>	<b>Physical Activity</b>	<b>Diet/ Nutrition</b>	<b>Tobacco Dependence</b>	<b>Substance Abuse</b>
	<b>16 Studies</b>	<b>N=6</b>	<b>N=6</b>	<b>N=6</b>	<b>N=4</b>
<b>Grace Period</b>					
<i>Yes</i>	3	0	0	3	0
<i>No</i>	19	6	6	3	4
<b>Attrition</b>					
<i>Non-adherence</i>	9	2	1	2	4
<i>Participants excluded</i>	5	2	2	1	0
<i>Other</i>	12	2	3	3	4

# Maintenance Measurement Issues

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	<b>Total</b>	<b>Physical Activity</b>	<b>Diet/ Nutrition</b>	<b>Tobacco Dependence</b>	<b>Substance Abuse</b>
	<b>16 Studies</b>	<b>N=6</b>	<b>N=6</b>	<b>N=6</b>	<b>N=4</b>
<b>Assessing Relapse?</b>					
<i>Yes</i>	15	3	3	5	4
<i>No</i>	7	3	3	1	0
<b>Assessing Reactivation?</b>					
<i>Yes</i>	9	1	0	4	4
<i>No</i>	13	5	6	2	0

# Maintenance Measurement Issues

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	<b>Total</b>	<b>Physical Activity</b>	<b>Diet/ Nutrition</b>	<b>Tobacco Dependence</b>	<b>Substance Abuse</b>
	<b>16 Studies</b>	<b>N=6</b>	<b>N=6</b>	<b>N=6</b>	<b>N=4</b>
<b>Assessing Barriers?</b>					
<i>Yes</i>	13	5	5	3	0
<i>No</i>	9	1	1	3	4
<b>Assessing Facilitators?</b>					
<i>Yes</i>	13	3	3	3	4
<i>No</i>	9	3	3	3	0

# Summary

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- ❑ 75%: using a criterion to assess maintenance of behavior change
- ❑ 75%: tracking maintenance using a continuously measured variable
- ❑ 82%: conceptualizing maintenance to be both a primary and intermediate outcome
- ❑ 100%: assessing maintenance at the level of the individual
  - 19% (N=3) at the organizational level
  - 19% (N=3) at the environmental level
  - 6% (N=1) at the policy level

# Conclusions

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- ❑ Researchers examining the maintenance of different types of behaviors were able to reach consensus about a definition of maintenance that applied equally well to all behaviors.
- ❑ Definitions may help the measurement of these phenomena in future research to be more precise and standardized across studies.

# Next Steps

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- ❑ Cross-site analyses
- ❑ What degree of variability occurs across behaviors in the way that maintenance is assessed?
- ❑ What degree of variability occurs in adherence across behaviors with respect to various aspects of maintenance?
- ❑ What level of maintenance is necessary across behaviors to impact a common outcome?