

Identifying Best Practices within the MOVE! Weight Management Program for Veterans: An Application of Qualitative Comparative Analysis

December 15, 2011

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turning knowledge into practice



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Office of Patient Care Services • Veterans Health Administration

Poll 1

Have you heard of Qualitative Comparative Analysis (QCA) methods?

- 1) Yes
- 2) No
- 3) Not sure

Roadmap for Presentation

- Background and Purpose
- Qualitative Comparative Analysis (QCA) Defined
- Steps for Conducting a QCA
 - Example using the MOVE! Best Practices Evaluation
- Advantages of QCA
- Challenges of QCA
- Conclusion

Background and Purpose

- MOVE! Weight Management Program for Veterans
- Evaluation purpose: identify “best practice” facility structures, processes, policies, and clinical and organizational features **linked with** better patient weight loss outcomes within the VHA’s MOVE! Weight Management Program.
- Collaboration between VHA and RTI

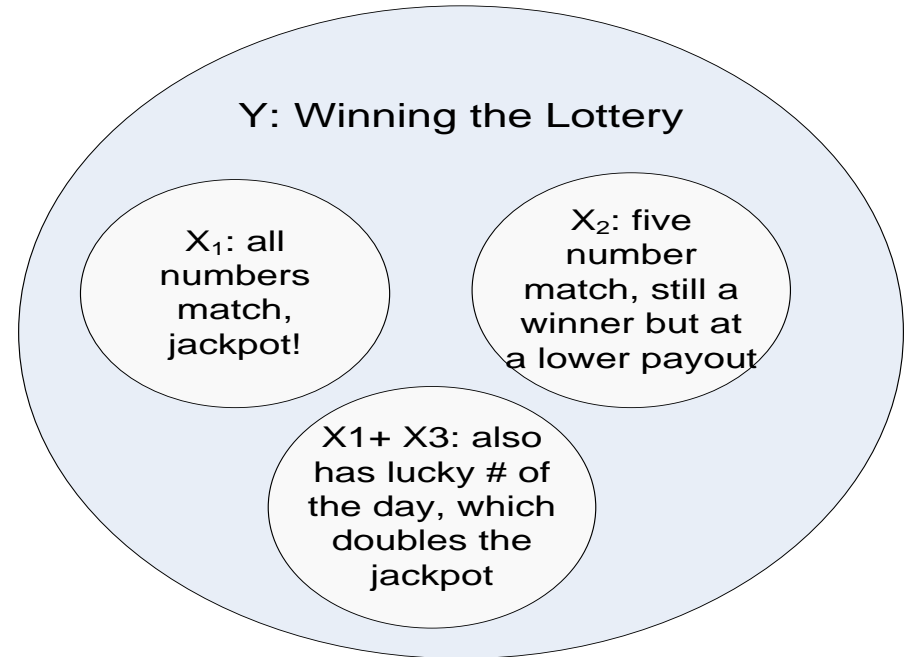
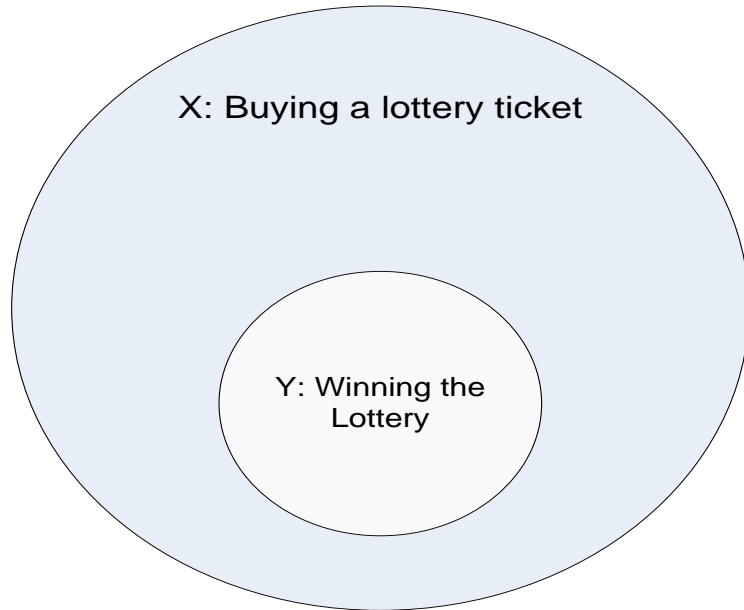
QCA Defined

- Qualitative Comparative Analysis is an analytic technique that bridges qualitative and quantitative methods.
 - Based on set-theory
 - Useful for small to medium N number of cases
 - Focuses on a limited set of conditions/features
 - Used when outcomes have more than one cause and/or the interaction of multiple causes is in play (i.e., causal complexity and identifies multiple solutions to achieving outcome (equifinality)
 - Supports theory-building and testing
 - Provides actionable policy information

QCA Results/Findings

- Findings from QCA are reported using outcomes that are quite different from traditional quantitative or qualitative studies.
- QCA findings are reported as conditions that are **necessary** and conditions that are **sufficient** for the outcome of interest.
- In the MOVE! Program example, the outcome of interest was facility-aggregated patient weight loss outcomes at 6 months.

Necessary & Sufficient Conditions



Necessary condition: Necessary conditions are conditions that must be present for an outcome to occur.

Sufficient condition: demonstrate whether the cause in question produces the outcome in question. To assess sufficiency, a researcher looks at cases with the same causal condition (“X₁”, “X₂”) (or combinations of causal conditions “X₁ & X₃”) and identifies cases that share the same outcome.

Conducting a QCA

- Step 1: Identify the evaluation question and develop a conceptual model
- Step 2: Select cases
- Step 3: Choose conditions
- Step 4: Identify or develop data sources
- Step 5: Calibrate conditions
- Step 6: Manage the data and code the cases
- Step 7: Analyze data

Step 2: Select Cases

- Case selection driven by outcome of interest and theory
- Evaluation team used MOVE! patient outcomes aggregated at the facility level to guide selection:
 - mean body weight change at 6 months
 - percent of treated patients losing 5% or more of body weight
- Facility size, location, and complexity were also factored in to assure representativeness
- Total number of sites (n=22) chosen based on resources and ability to maintain “empirical intimacy”
 - 11 sites with larger patient weight loss outcomes
 - 11 sites with smaller patient weight loss outcomes
- RTI investigators involved in QCA data collection were blind to facility weight loss outcomes

Step 3: Choose Conditions

- Prioritized “resource availability” and “implementation policies and practices” from the conceptual model, plus clinical program features that should be part of evidence-based weight management
- Created an exhaustive list of conditions
- Challenge of too many conditions (4-5 are generally best)
- Final list was narrowed down to 17 conditions (see next slide)

Step 3: Choose Conditions

- ***Implementation policies and practices***

- Interface between screening and treatment –use of an orientation session or class
- Standard curriculum for program delivery
- Multidisciplinary team approach involving dietitian and at least one other discipline
- Program complexity- use of a group orientation or some other initial screening and a minimum of an 8-week group session series plus a maintenance component (or a longer than 8-week active component)
- Type of care delivery - group, individual, or combination
- Quality improvement (QI) strategies used for enhancing MOVE! program and resolving program challenges
- High facility accountability and internal reporting requirements
- High VISN accountability and external reporting requirements

- ***Resource Availability***

- High level of staff effort providing MOVE! care to patients (above the median for number of FTE providing MOVE! care per patient seen with MOVE!)
- Facility self-reported resource sufficiency
- Facility complexity level (Medical Center vs. Community Based Outpatient Clinic)
- Data tracking and analysis capacity
- Active physician champion involved in MOVE! program

- ***Clinical Program Features***

- Tailored but structured dietary plans for patients used
- Tailored but structured physical activity plans for patients used
- Multiple behavioral modification strategies used
- Weight loss maintenance component used

Step 4: Identify or Develop Data Sources

- Program Summary Form (PSF)
 - Collected diagrams of patient flow through MOVE! programs
 - Collected organizational charts including supervisory hierarchies and functional relationships
 - Collected detailed staffing effort
- Key informant interview data (1-2 MOVE! staff/site)
- Electronic Medical Record (EMR) abstraction
 - Chart reviews from ~50 randomly selected patients treated with MOVE! at each facility
- Follow-up summary
 - Sites reviewed summary of PSF and interview and provided additional feedback, clarification, or correction to ensure accurate representation of their program

Step 5: Calibrate Conditions

- Calibration:
 - “The degree to which cases satisfy membership criteria [in a condition], which in turn are usually empirically determined, not inductively derived” (Ragin 2008:80)
 - Example:
 - Condition: “Active Physician Champion”

Step 5: Calibrate Conditions

- Crisp-set calibration used (as opposed to fuzzy set)
- Each condition is evaluated and rules established:
 - present (+) OR absent (-) [**absolute**]
 - represented to a high degree (+) OR low degree (-) [**relative**]
 - fully in the set (+) OR fully out of the set (-) [**QCA jargon**]
- Drew on expert knowledge to develop decision rules for calibration
- Iterative refinement to data collection tools and decision rules based on piloting with two sites
- Advantages of crisp-set calibration
 - Easier to interpret and make policy recommendations
- Disadvantages
 - Forces a dichotomy, lose some granularity

Step 6: Manage the Data and Code Cases

- Abstracted data from sources into Excel table
- Reviewed data
- Managed conflicts in data sources
- Assigned calibration decision
- VHA team not involved in data coding

Condition #1 Physician Champion level of involvement					
Facility ID	Program Summary Form (see Qs 1, 2)	Interview Data (see Qs 2, 3, 10)	EMR Data	Site Summary Form/ Follow-up	Decision (1 = fully in the set; 0 = fully out of the set)
Facility A	XYZ	PDQ	ABC	DEF	1
Facility B	XYZ	MNO	HIJ	QRS	0

Step 7: Analysis

- Coding of cases results in a “truth table”
- Looked for single conditions that were necessary or sufficient
- Managed having too many conditions with “bottom-up QCA” approach
- Reviewed unusual finding and reexamined qualitative data
- Iterative analysis

Truth Table-simple example

Site	Condition X_1	Condition X_2	Condition X_3	Outcome
A	-	+	-	Absent
B	+	+	-	Present
C	+	-	-	Absent
D	-	-	+	Absent
E	+	-	+	Present
F	-	-	-	Absent
G	-	+	-	Absent
H	+	+	+	Present
I	+	-	-	Absent
J	+	+	-	Present

X_1 is a necessary condition, X_2 and X_3 are sufficient conditions

Necessary Conditions for MOVE!

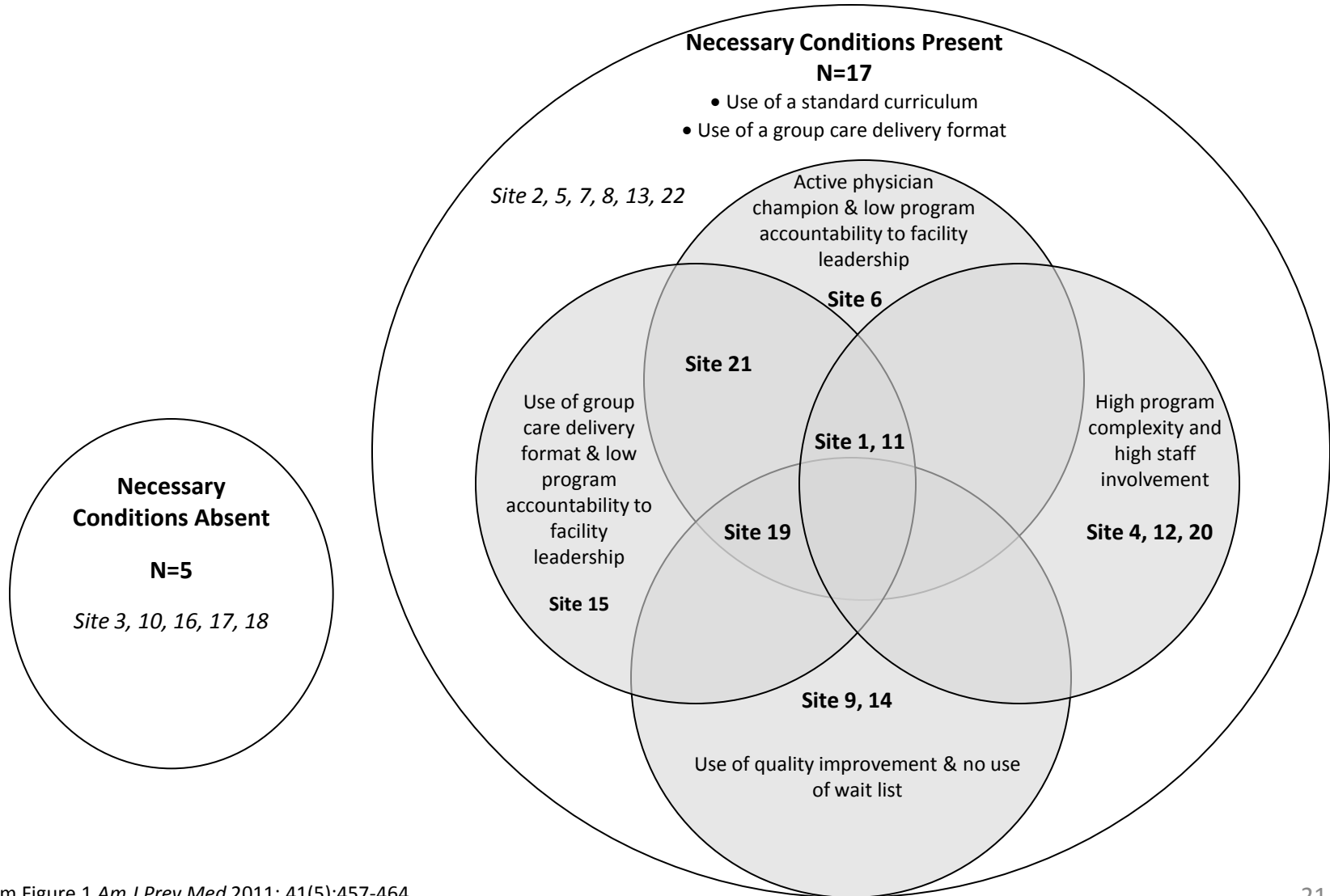
- To achieve larger patient weight loss outcomes the following are necessary:
 - Use of a standard curriculum
 - Delivery via group-based care
- These two conditions were present at all 11 sites with larger outcomes (and 5 sites with smaller outcomes). Therefore, the absence of these two conditions guarantees that a site will have smaller patient weight loss outcomes.

Sufficient Conditions for MOVE!

- Four sufficient combinations were identified:
 - High program complexity in combination with high staff involvement (n=5)
 - Active physician champion in combination with low facility accountability (n=5)
 - Use of mixed delivery format (group and individual) in combination with low facility accountability (n=5)
 - Use of quality improvement strategies in combination with NO waiting list (n=3)

Most sites had more than one sufficient combination of conditions present.

Summary of Findings



Limitations of this Evaluation

- Case selection limitations
 - Crude weight loss outcomes used
 - Outcomes from the prior year used
 - Weight data from electronic EMR extracts
- Use of crisp-set QCA requires dichotomization of conditions under evaluation

Translation of Findings to Policy/Practice

- Evaluate local MOVE! programs to ensure:
 - Use of a standard curriculum that has a group component
 - A 12-session group curriculum is available at the MOVE! intranet website <http://vaww.move.med.va.gov/GrpSessions.asp>
 - Have an active physician champion
 - Have a high level of staff involvement and program complexity (orientation sessions, maintenance treatment, multiple disciplines involved)
 - Use quality improvement strategies and avoid use of a waiting list

Challenges and Advantages of QCA

Challenges

- Not suitable for very small case studies (e.g., 3-5 cases)
- Intensive data collection and iterative analyses
- Limited number of conditions allowed
- Less useful when programs are not comparable
- Collaboration between program implementers and evaluators required

Advantages

- Offers useful analytic tool for studying organizational process or programs
- Allows testing of equifinality principle
- Can be applied in a healthcare setting with actionable results
- Supports theory building and theory testing

Poll 2

Now that you have learned more about QCA do you think it would be a helpful approach to use in your research?

- 1) Very helpful
- 2) Somewhat helpful
- 3) Possibly helpful
- 4) Not helpful at all

Citations

MOVE! Best Practices QCA Evaluation:

- Kahwati LC, Lewis MA, Kane H, Williams PA, Nerz P, Jones KR, Lance TX, Vaisey S, Kinsinger LS. Best practices in the Veterans Health Administration's MOVE! Weight management program. *Am J Prev Med.* 2011 Nov;41(5):457-64.

Other Citations:

- Weiner BJ, Lewis MA, Linnan LA. Using organizational theory to understand the determinants of effective implementation of worksite health promotion programs. *Health Educ Res* 2009;24(2):292-305.
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- Rihoux Benoit RC, editor. *Configurational Comparative Methods: Qualitative Comparative Analysis (QCA) and Related Techniques.* Thousand Oaks: SAGE Publications; 2009.
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- Dy SM, Garg P, Nyberg D, Dawson PB, Pronovost PJ, Morlock L, et al. Critical pathway effectiveness: assessing the impact of patient, hospital care, and pathway characteristics using qualitative comparative analysis. *Health Serv Res.* 2005 Apr;40(2):499-516.

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Additional Slides

Solution Coverage

Table 2. Raw and unique solution coverage of the four sufficient condition combinations identified in the qualitative comparative analysis

Solution	Raw Coverage n (%)	Unique Coverage n (%)
-High program complexity and high staff involvement	5(45%)	3(27%)
-Use of QI and no wait list	3 (27%)	2(18%)
-Active physician champion and low program accountability to facility leadership	5 (45%)	1 (9%)
-Use of group-care delivery format and low program accountability to facility leadership	5 (45%)	1 (9%)
Total Solution Coverage	100%	

Note: N = 17 because 5 cases lacking the necessary conditions were excluded from the analysis of sufficient conditions

12/15/2011	12:00pm	Identifying Best Practices within the MOVE! Weight Management Program for Veterans: An Application of Qualitative Comparative Analysis	Timely Topics of Interest	Kahwati, Leila Kane, Heather Lewis, Megan
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Do you happen to know whether data collected at site level was based on primarily male patients, or male and female patients? Or, has anyone looked at how move program outcomes may vary by sex/gender of veteran and by site org characteristics? I am asking because of the sex differences in weight management.

The current MOVE! Outcomes Report is available at the VSSC Website. The direct link is here: <https://securereports2.vssc.med.va.gov/Reports/Pages/Report.aspx?ItemPath=%2fMove%2fMoveBMloutcomes>. It is also accessible from the main VSSC home page under the Clinical Programs section , then the MOVE! section.

Was there a relationship between size of facility (medical center vs CBOC) and weight loss outcome?

The QCA evaluation did not specifically evaluate this. I refer you to another publication that discusses weight loss outcomes (Kahwati et al. REAIM Evaluation of the MOVE! Weight Management Program for Veterans <http://www.springerlink.com/content/rqu01k308rt314w2/fulltext.html>). In some of our unpublished, operationally-driven work, we have found no association between facility complexity level (Complexity category(IA, IB, 1C, 2, 3, and various CBOC sizes) and weight loss outcomes.

You mentioned most sites had trouble making a female only move group. Where can we find that specific data on difficulties with MOVE by sex/gender? Or, should I email you directly?

Would recommend you contact Dr. Ken Jones, the National Program Director for Weight Management (Kenneth.jones6@va.gov).

Were attrition rates reported or analyzed?

This was not an evaluation of clinical weight management care, so attrition rates are not applicable. I refer you to another publication that discusses weight loss outcomes and patient engagement in care (Kahwati et al. REAIM Evaluation of the MOVE! Weight Management Program for Veterans <http://www.springerlink.com/content/rqu01k308rt314w2/fulltext.html>).

The best practice for one site might not be applied to other sites due to other environmental factors. How do we make sure that the best practice can be applied universally?

The strength of QCA is that it determines all of the recipes for success , and recognizes that there are multiple paths to success (e.g., this is the concept of equifinality). So, sites can have a menu to choose from. Also, if sites want to maximize their odds of success, but only have resources to invest in one best practice, they should select the solution with the highest raw and unique coverage as high raw and unique coverage means the solution was found at multiple sites, versus a solution with low coverage, which might mean the solution is less translatable across different sites.