Review 2 : Community engagement for health via coalitions, collaborations and partnerships – a systematic review and meta-analysis (Component 2): FINAL Protocol

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Moving from Component 1 (Map) to Component 2 (In-depth Synthesis)

The original community engagement review suggested that while peer-delivered interventions appeared to have higher effect sizes on health outcomes than interventions with community members leading, collaborating or consulting on design, there is insufficient evidence that one particular model of community engagement (i.e. combination of engagement across design, delivery and evaluation) is likely to be more effective for health outcomes than any other; and no clear model of community engagement was identified that works best across all contexts, populations and health issues (O'Mara-Eves et al. 2012). A synthesis of process evaluations from the previous review also suggested that implementation issues and consultative process may influence the success of an intervention (O'Mara-Eves et al. 2013). Additionally, subsequent analyses of specific community engagement processes in breastfeeding interventions suggest that some processes may be more aligned with effective outcomes (Thomas et al. 2014).

Our Advisory group highlighted the need to focus on the processes of community engagement in order to inform PHAC members about what components are contained within a successful community engagement initiative; and a need to further understand variations in the extent of community engagement across design, delivery and evaluation of an intervention. They also identified a need to examine differences across age groups, health topics and type of disadvantage.

The aim of the in-depth synthesis undertaken in Component 2 will be to examine and evaluate the processes and extent of community engagement across all stages of a research project. This is done for the purpose of informing NICE PHAC members about the likely components and processes of successful community engagement.

Methods

To understand the processes and extent of community engagement associated with effective health outcomes, we will undertake a synthesis comprised of three interconnected parts:

(1) A framework analysis of process data based on our conceptual framework of community engagement;

(2) A statistical moderator analysis, which will seek to test sub-groups identified based on Component 1 findings for differential effectiveness;

(3) A synthesis using Qualitative Comparative Analysis (QCA), which aims to generate theory about *necessary* and *sufficient* intervention components that are associated with effective interventions.

Details of each of these methods follow.

Identification of dataset for analysis

The dataset for Component 2 will consist of:

- all trials and any process evaluations linked to them ('integral' process evaluations),
- included in the original community engagement review (N=47) plus those identified in the current review (N=28);
- that describe the type of community engagement as coalitions/collaborations/ partnerships, community organisation service development or community action/support/mobilisation.

Two studies included in Component 1 (Bergstrom et al. (2013) and Wermert et al. (2012) were excluded from this synthesis because, upon closer examination of study methods, neither met our inclusion criteria for community engagement.

Risk of bias assessment

All outcome evaluations have been assessed for risk of bias in Component 1. Linked process evaluations will have a quality assessment undertaken using the same tool applied in the original community engagement review.

Framework synthesis of process data

The processes of community engagement described under the 'Actions' column of the conceptual framework developed in the previous review of community engagement are most likely to be modifiable. We will extract Yes/No data (or amounts stated by authors) from all process evaluations for potentially modifiable processes of community engagement. Studies will be coded with respect to whether there was evidence of:

- Collective decision making
- Bi-directional communication
- Training support (i.e. for community members to learn how to take part in the coalition/collaboration/partnership)
- Administrative support (i.e. paid staff to organise meetings, take and circulate minutes, etc.)
- Sustainable funding processes
- Frequency of coalition meetings
- Duration of coalition meetings
- Timing of coalition meetings
- Adequacy of time allowed for relationships to develop
- Other *modifiable* processes not described above (to capture any newly emerging processes)

Consultation with NICE Stream 2 colleagues about emerging processes of community engagement in the literature may identify additional processes beyond those in the conceptual framework. We will add these as they are identified.

The resulting data extracted from this set of process evaluations will undergo a framework synthesis, where we 'populate' the framework above with studies that describe each process; and then

thematically compare and contrast aspects of each process looking at differences in age groups, gender or socioeconomic disadvantage using an adaptation of previously developed methods (Oliver et al. 2008; Ritchie & Spence 1994; Thomas et al. 2012).

Statistical moderator analysis

Tests of interaction will be performed using meta-regression to examine whether there is evidence that pooled intervention effects differ across processes of community engagement (identified in the process synthesis) and study characteristics previously identified in component 1, including comparator type and participant characteristics. Four research questions will be addressed:

(1) Are potentially modifiable processes of community engagement associated with health outcome effects?
(2) What is the relationship between the extent of community engagement (high, moderate or low) and health outcome effects?
(3) Do direct comparisons of community engagement (i.e. studies that test community engagement alone versus no community engagement) differ in health outcome effects from indirect comparisons of community engagement (e.g. those that test community engagement plus an intervention versus usual care)?
(4) Do health outcome effects differ for
   a. different age groups;
   b. studies targeting men only versus those targeting women only;
   c. studies specifically developed for low-income groups versus those that are not; or
   d. 'distal' (e.g. self-efficacy) and 'intermediate' (e.g. health behaviour) outcomes versus 'proximal' (clinical measure) outcomes?

Primary outcomes from each included study will be grouped according to common measures, and appropriate effect size estimates (or statistics used to derive these) extracted.

Meta-regression models will be fitted (where data permits) using the *metareg* command in Stata v.12.1 (Statacorp, College Station, TX). While there are no hard and fast rules, a minimum of ten studies is often cited as sufficient for undertaking meta-regression analyses and for the dichotomised constructs, at least three studies in each category. For each potential moderator, we will report the pooled effect size and corresponding 95% confidence intervals (CIs), the proportion of between-cluster variability (Adjusted R^2) accounted for by the moderator variable and I^2, the proportion of residual between-study variation due to heterogeneity (Borenstein 2009).

Qualitative Comparative analysis

Using the processes identified in the process synthesis, we will conduct Qualitative Comparative Analysis (QCA) to identify factors that were, and were not, associated with intervention success. The studies included in the QCA will either be those that tested a direct comparison of community engagement versus indirect community engagement (if this data set is large and sufficiently coherent; OR a sub-set of studies from the moderator analysis which enables us to explore issues which this analysis was unable to resolve). This approach will be used to develop theory on the *necessary* and *sufficient* intervention characteristics that are associated with effectiveness.

We will then use the outcome of our moderator analyses to initiate a 'dialogue' between the data and the analysis, resulting in additional study characteristics being captured. The output from this

process will be the development of new theory to explain why particular outcomes have been observed – based on an iterative examination of study characteristics and their outcomes (Thomas et al 2014).

Timelines

- Timelines are not anticipated to change from the initial protocol. Main deliverables will consist of:
- Draft report to NICE (23rd October)
- Revised draft report to NICE (23rd November)
- Draft PHAC presentation to NICE (4th December)
- Presentation of Component 2 findings to PHAC (11th December)
- Final report to NICE (23rd December)

References

Borenstein M. Effect sizes for continuous data. In: Harris MC, Larry V Iedges, Jeff C Valentine, eds. *The handbook of research synthesis and meta-analysis*. New York, NY: Russell Sage Foundation, 2009: 221-35.

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Ritchie J, Spence L (1994) Qualitative data analysis for applied policy research. In Bryman A, Burgess RG (eds) *Analyszing qualitative data*. London: Routledge. pp.173 – 194.

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