Chapter 5

Complexity in public health interventions - Stakeholders’ perspective: A qualitative study

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Background

A qualitative study involving one-to-one in-depth interviews and focus group discussions with stakeholders of public health was undertaken as a background activity for development of tool to measure complexity in public health interventions. Like any other qualitative research, the purpose of the study was to gain a deeper insight into a particular phenomenon of interest, which in this case was complexity
in public health interventions. In other words, the study was primarily meant to suggest general themes or theories which could be used to phrase specific items of the tool.

A wide range of participants - students, researchers, faculty members, statisticians and systematic reviewers were recruited for the study. Interviews and focus group discussions were conducted with the aid of a semi-structured interview guide. It consisted of a set of three open-ended questions and additional questions were posed during the course of the interview/focus group discussion. Same interview guide was used for all the participants. Conversations were audio-recorded. For textual data analysis, the usual approach of qualitative data analysis, which involves verbatim development, coding and conceptualization was followed. A word-to-word transcription of audio recordings was carried out to understand the underlying meaning of the conversations. Roughly one third of the transcripts were reviewed to identify the frequently appearing terms or opinions, which were referred to as codes. In the next step, all the transcripts were coded systematically. Textual data were summarized later according to the codes assigned to obtain seven broad divisions of perceptions. Further, similar codes were merged into bigger identified themes (MRC guidance) to obtain a comprehensive information.

Results

A total of 20 sessions were conducted during the period of October - November, 2013. Out of the 20 sessions conducted, 17 were in-depth interviews, while three were focus group discussions. Students and faculty who are closely involved in public health research were involved in focus group discussions. First focus group discussion was performed on a batch of 18 students, second involved a group of four faculty members. The third focus group discussion also included three faculty
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members. Each session lasted for an average of half an hour; maximum being one hour 20 minutes and minimum being 24 minutes.

5.1 Broad divisions of perceptions about complexity in public health interventions

The broad divisions of perceptions about complexity in public health interventions along with corresponding explanations are presented below:

**Perception 1: “Complexity is the lack of control”**

Unlike clinical interventions, public health interventions are not confined to an individual and not implemented in a customized environment, where the sources of variation can be balanced in a robust way. Public health interventions are uncontrolled interventions, which lack replicability or generalizability and possess multiple components acting at different levels.

**Perception 2: “Complexities are the difficulties that occur while implementing a public health program”**

Public health interventions are conducted in an open environment, thereby making their implementation complex. While the clinical trials involve homogenous groups that can be closely monitored to achieve a high response rate, public health interventions on the other hand involve diverse population. Therefore, framing and implementing an intervention for a heterogeneous population that is uncontrolled is bound to be more difficult, requiring lot more resources in terms of time, manpower and funding. Uncontrolled nature of intervention contributes to difficulties such as poor response rate, high attrition rate and high switch over rate. Further, it is not guaranteed that observed outcomes are contributions of intervention.
alone; role of confounding factors such as social, economical, cultural, political and environmental influences cannot be undermined.

*Perception 3: “Complexity is due to lack of representativeness of the intervention”*

Public health interventions are guided by population characteristics and feasibility (mainly budget). In most cases, public health interventions are tailored according to feasibility, neglecting the standard requirement. Mismatch between these two aspects i.e., what is required to be delivered and what is delivered creates complexity. Composition of a public health intervention has to be based on ground realities. Resource allocation has to be prioritized according to evidences from the field.

*Perception 4: “Complexity is created by population dynamics”*

Public health interventions are “pragmatic” and rely more on people’s actions. In other words, they are people centric. Diversities in culture, customs, literacy and other factors lead to disparities in the uptake of intervention.

*Perception 5: “Complexity is due to the competition from co-interventions”*

Public health interventions are not standardized i.e., they cannot be delivered in a similar manner in all settings. Further, it is impossible to restrict the actions of people. They might receive the same intervention from several other sources as the promotion of a public health intervention can happen in many ways.

*Perception 6: “Complexity lies in the research question or the problem”*
Since the determinants of lifestyle related problems are multidimensional, the interventions to bring about a change will also be multidimensional. This in essence makes these interventions rather complex and difficult.

**Perception 7: “Complexity from the perspective of a health provider is different from that of a beneficiary”**

From the perspective of the health care provider, complexity is in terms of achieving a wide coverage of the intervention, ensuring peoples’ compliance and mechanistic of providing health care. In other words, implementation of intervention is complex.

For a beneficiary, complexity finds its roots in the utilization. The utilization process depends on various factors such as culture, belief, previous experiences, faith, fear, need and many others.

### 5.2 Consolidation of Perceptions

Responses of participants were consolidated on the lines of the five major sources of complexity as put forward in MRC guidance.\(^{47}\)

**Theme 1: The number of interacting components within the experimental and control interventions**

Public health is complex because it is a very broad term. Public health deals with health of the population or community. Health by itself is complex. It is easier perhaps to study the health of an individual as compared to that of a community as it adds a layer of complexity. There are many parts or entities interacting with one another in ways not easy to predict. Establishing cause and effect relationship under such a situation is difficult.
Theme 2: The number and difficulty of behaviours required by those delivering or receiving the intervention

Public health interventions mostly seek a wide coverage and are directed to a population or a community. Heterogeneity/diversity/dynamics of population contributes to complexity. Diversities exist among people in terms of their age, gender, ethnicity, knowledge, attitude, decision making, needs and many other factors. Consequently, there is no way to obtain a standardized reaction to a given intervention. In other words, the responses of the participants to a given intervention cannot be identical and there will be variations in the way the people perceive and accept the intervention.

Theme 3: Number of organizational levels targeted by the intervention

A public health intervention has to be composed in accordance to the social, political, economical and cultural factors of its place of implementation. All these factors are broadly referred to as “contextual factors”. The context has a profound influence on behaviours and actions of people. The behaviours and actions of individuals are highly attributable to the environment in which they live. Consequently, as changes occur in the surroundings, it is very much likely to reflect on the responses of people. The contextual factors also hinder generalizability/ replicability of public health interventions i.e., the same intervention when implemented in different place or time is likely to produce different outcomes. Interactions among components of intervention also vary with the context.

Theme 4: Number and variability of outcomes

Due to the fact that public health interventions possess multiple components and
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are delivered at community level, it is difficult to have outcome measures which are valid and reliable across such a wide and heterogeneous population. Also, it will be not feasible to have a primary outcome measure which measures the totality of effectiveness of entire intervention. Apart from this, complexity can be attributed to the fact that the observed outcomes are subjected to influence of other factors in addition to intervention (dilution of the intervention due to influence of co-interventions) and lack of clarity in the study methodology.

**Theme 5: Degree of flexibility permitted in the tailoring of the intervention**

Public health interventions always seek large coverage, are need based, require community participation and co-ordination with many other sectors thereby making it a complex exercise. i.e., the public health intervention delivered has to be compatible with/tailored according to the social, political, cultural, economical and environmental conditions of its place of implementation.

Figure 5.1 shows the broad divisions of complexity and themes adopted for consolidation of perceptions.

### 5.3 Conceptual mapping of factors responsible for complexity in public health interventions

A Concept map was prepared to provide a graphical overview of factors that are responsible for complexity in public health interventions. It also helps to visualize the inter relationships between several factors.

Figure 5.2 provides the concept map. The square boxes represent the factors that contribute complexity in public health interventions and the arrows depict the
relationship between the factors.

Figure 5.1: Broad divisions of perceptions and themes adopted for consolidation of perceptions
Figure 5.2: Concept map of factors responsible for complexity in public health interventions
5.4 Lessons from qualitative analysis

The study provides an insight into the stakeholders concept and perception of complexity in public health interventions. The varying responses obtained affirm the lack of clarity towards understanding the term complexity.

There is a need for a strong theoretical base to understand complexity and also a concrete methodological framework to tackle it. Clear cut definition of the target population, involvement of higher level administrators, local leaders and community leaders as the stakeholders, use of appropriate sampling technique, conducting pilot studies to understand ground realities and choosing an appropriate research question supported by a strong logical framework are some of the effective strategies to be adopted to handle complexity.

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The qualitative study provided wealth of information on the probable items to be included in the proposed measurement tool for complexity in public health interventions
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Key Points

» The qualitative study was undertaken as a background activity for development of tool to measure complexity in public health interventions.

» The study was primarily meant to suggest general themes or theories which could be used to phrase specific items of the tool.

» The study involved semi-structured one to one interviews and focus group discussions with a wide range of public health professionals (public health stakeholders, students, researchers, faculty, statisticians and systematic reviewers).

» Participants were queried on their perception about complexity in public health interventions; 20 sessions were conducted – 17 one to one interviews and three focus group discussions.

» The conversations were audio recorded and data analysis included three principal steps namely verbatim development, coding and conceptualization. Broad divisions of perceptions were made based on opinions/ideas and the perceptions were consolidated by considering the sources of complexity depicted by MRC guidance as themes.

» Recommendations from the study are - there is a need for a strong theoretical base to understand complexity and also a concrete methodological framework to tackle it. Clear cut definition of the target population, involvement of higher level administrators, local leaders and community leaders as the stakeholders, use of appropriate sampling technique, conducting pilot studies to understand ground realities and choosing an appropriate research question supported by a strong logical framework are some of the effective strategies to be adopted to handle complexity.