New approaches to qualitative interviewing: Development of a card sort technique to understand subjective patterns of symptoms and responses

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ABSTRACT

Background: Ability to elicit individuals' perceptions of complex behavioral processes can be challenging, as it hinges not only upon the skill of the researcher, but also upon assumptions of a shared language and individuals' ability to recall, analyze, and effectively communicate events. In a case-based qualitative-descriptive study about teens' experiences of asthma self-management, we found that variations in terminology and descriptions of events, symptoms, and responses made it difficult to understand teens' experiences of asthma. In particular, teens' conceptualization of their asthma symptoms and self-management responses differed from situation to situation, from other teens in the study, from the interviewer, and from prior reports in the literature. These differences across many levels made it difficult to identify patterns in individual processes of self-management, and among teens in general..

Objectives: To address these challenges, we developed a card sorting activity to facilitate in-depth exploration of teens' experiences of asthma.

Design: Case-based qualitative description. Setting: Teen-parent dyads (N=28) were recruited from the community, Emergency Department, Pediatric Pulmonary Department, and prior study subjects of a major medical center.

Methods: Teens first identified and then sequenced their own unique sets of asthma symptoms and self-management responses. Teens then developed contextually grounded narratives using the card sort they had created as a visual aid.

Results: This technique not only allowed us to bridge teen-interviewer communication barriers and develop shared terminology, but also resulted in a visible sequence of asthma symptoms and self-management responses.

Conclusions: The card sort technique facilitated researcher-teen discussion and enabled comparison of self-management patterns across teens in our study. This technique is potentially useful for other areas of research exploring behavioral processes with complex and individual-specific experiences, in particular those involving sequences of events and self-management responses. This paper delineates the development, utility, and potential applications of the symptom-response card sorting technique for research and clinical practice.

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What is already known about the topic?

- Understanding teens' contextually dependent patterns of asthma self-management is critical to designing effective asthma management interventions and promoting better asthma control.
- Qualitative research into complex phenomena such as self-management is limited by participants' ability to recall, analyze, and communicate effectively.

What this paper adds

- The symptom-response card sort technique is a new and effective approach to exploring the dynamic, individual-specific, and contextually dependent processes of self-management.
- Card sorting helps to bridge communication barriers, develop shared terminology, and promotemore effective communication between participants and interviewers.
- Visual mapping of symptom-response pathways via card sortfacilitates a more in-depth exploration of individual experiences as well as comparison of behavioral patterns across participants.

1. Background

Chronic disease self-management is considered central to maximizing quality of life and minimizing adverse health outcomes in affected individuals, and is thus a frequent target for health behavior interventions (NHLBI, 2007; Rand et al., 2012; Ward et al., 2014). Prerequisite to helping patients achieve better self-management is understanding their perceptions, patterns, beliefs, motivations and rationales for self-management behaviors (Blaakman et al., 2014; Knight, 2005). This can be challenging, as self-management behaviors are the responses of unique individuals *to* specific events *within* particular situations, and are therefore complex, dynamic, and contextually dependent (Ayala et al., 2006; Martin et al., 2010). Thus, understanding self-management requires not only uncovering patterns of perception and response, but also the contexts of these patterns (Mammen and Rhee, 2012).

Ability to elicit individuals' perceptions of complex behavioral processes during an interview may be limited, as it hinges not only upon the skill of the researcher, but also upon assumptions of a shared language, and an individual's ability to recall, analyze, and verbalize events (Marshall and Rossman, 2011; Maxwell, 2012). In a recent qualitative study of Teens' Experiences of Asthma Self-management (TEA Study), we attempted to uncover teens' patterns of asthma symptoms and responses, along with their rationales for behaviors, and the contexts in which they occurred. Early in the study, we found that teens' conceptualizations of symptoms often differed not only from prior reports in the literature, but also from each other, and from situation to situation. This made it difficult both to elicit individual processes of self-management and identify common patterns among teens. In response to these challenges, we developed a novel card sorting technique to facilitate a more systematic discussion of teens' multiple and varied symptoms and responses, and to

establish a shared terminology, in order to promote a more in-depth exploration of teens' processes of asthma self-management.

While card sorts have been used previously in both qualitative and quantitative research, prior techniques (see Table 1) have focused on sorting predetermined and uniform sets of items (Chen and Hsu, 2015; Righi et al., 2013; Van Exel and de Graaf, 2005). Some techniques, such as the Q-sort, assess subjective viewpoints by rank-ordering items according to qualities (e.g. most agree vs. most disagree) (Coogan and Herrington, 2011; Van Exel and de Graaf, 2005). More commonly, pictures, words, statements, or vignettes about a specific topic are sorted into groups or categories to elicit information about cognitive processes (e.g. learning, perceptions, information behaviors, cognitive flexibility, adaptive problem solving) (Andrews et al., 2015; Lowe et al., 2014; St Jean, 2014; Stamm et al., 2015). Often, this type of simple sorting is referred to as pile sorting, as cards are placed into conceptually similar "piles" (Boster, 1994; Lynch and Holmes, 2011; Quintiliani et al., 2008; Weller and Romney, 1988). Variations of pile sorting (e.g. hierarchical or sequential techniques) may further differentiate piles into series of primary and subgroupings, by order of relationship or priority (Boster, 1994; Davies, 1996).

In contrast to prior techniques, teens in the present study identified, sorted, and discussed *individually specific* lists of symptoms and responses to explain personal patterns of asthma self-management and the contexts in which they occurred. The purpose of this paper is to describe the development of this new card sort technique and to discuss its utility as an interviewing tool for both research and clinical practice.

2. Methodological context

The TEA study was reviewed by the University of Rochester Research Subjects Review Board and was in accordance with standard practices for ethical conduct of research. A case-based, qualitative descriptive design with a two-step purposeful and criterion based sampling approach was used (well controlled vs. not well-controlled asthma; minority vs. non-minority) (Maxwell, 2012). Case-based methodology views individuals and phenomena as contextually embedded units, rather than isolated people or events, thereby helping to develop a real-world understanding of complex social phenomena (Meyer, 2001; Yin, 2014). In this study, cases (*N* = 14) were built around teen-parent dyads (*n* = 14; *n* = 14), with data from each case including: (a) a first semi-structured interview with the teen; (b) a semi-structured interview with the parent; (c) a 2-week self-management voice-diary; and (d) a second unstructured, adaptable, and open-ended interview with the teen, approximately one-month later. Eligible dyads were English speaking, with teens aged 13–17, diagnosed with persistent asthma, and no other major medical or psychiatric disorders. Interviews were approximately 1 h each and were audio recorded. Interviews were conducted by JM (doctoral candidate) under the supervision of SN (methodological expert), HR and AB (content experts). Questions and probes were designed to