

Understanding Patient Uncertainty as a Driver of Emergency Department Utilization: A Concept Mapping Approach

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Background and Purpose

- Most previous research regarding factors associated with increased risk of emergency department (ED) use has been done via retrospective review of medical records rather than obtaining patients' perspectives.
- Recent research identified patient uncertainty related to symptoms as a primary motivator for seeking ED care, and ongoing uncertainty at the time of ED discharge as an unmet need (Rising et al. 2015; Rising, Hudgins, Reigle, Hollander, & Carr 2016).
- While providers have limited ability to influence many factors identified by retrospective medical record review (e.g. financial concerns), patient uncertainty can be addressed by providers directly. To do so we must first define domains of uncertainty that patients experience in order to inform targeted interventions to address patient uncertainty.
- The objective of this research was to engage patients through group concept mapping (GCM) to conceptualize the domains of uncertainty that contribute to decisions to seek care in the ED.

Methods

- **Design:** This study used GCM to engage participants on how uncertainty related symptoms contribute to the decision to seek ED care. GCM is a method of "structured conceptualization" where a group of stakeholders defined by a common characteristic work together to define the meaning/ boundaries of a concept through a sequential process of 1) brainstorming, 2) sorting, and 3) refining a set of ideas (Trochim & Kane, 2005). (Figure 1)

Figure 1. Group Concept Mapping Process

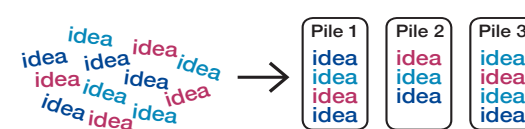
Session 1: Brainstorming Ideas

A fill-in-the-blank statement is provided to a group of participants. Participants then work together to think of as many ideas as possible to complete the statement.



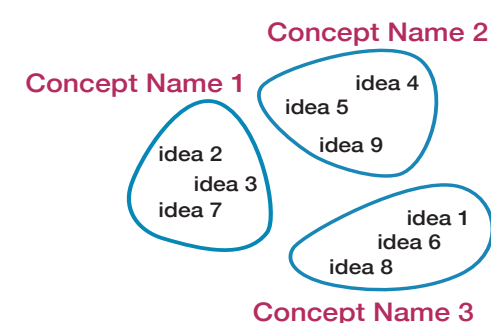
Session 2: Sort Ideas

Participants work individually to sort all the ideas from session 1 into piles based on how strongly he/she thinks the ideas are related to each other. Software is then used to create an illustration of how closely related the ideas are, based on how often each idea was sorted together or apart. The software then groups the ideas close together on the map into "clusters", each representing a separate concept (or theme).



Session 3: Refine Group Map

The "Concept Map" is presented to the group for review. Participants work together to refine the map and name each concept within the map.



- **Setting:** Two urban hospital EDs within the same health system on the eastern coast of the United States.
- **Sample:** Purposive sampling was used to recruit two groups of individuals who recently sought ED-based care that did not result in admission, suggesting that factors other than strict medical acuity contributed to the decision to seek ED care:
 - 1) patients treated in the ED twice within 30-days, with the second visit within three weeks of the first GCM session.
 - 2) patients who had been to the ED within three weeks of the GCM session and had visited a primary care practice at least once within the past year (suggesting these individuals have access to primary care).

- **Data Collection/Analysis:** We conducted two GCM rounds, each round comprised 3 sessions.
- **Session 1 ("brainstorming"):** Participants generated idea statements in response to the following prompt: "When experiencing symptoms, people might go to the Emergency Department when they feel uncertain about..."
- **Session 2 ("sorting"):** Participants electronically sorted the idea statements into "piles" of similar ideas, and named each pile.
- Sorting results from session 2 was entered into computer software (Concept Systems Incorporated, 2014) that used multidimensional scaling to map the relatedness of the ideas onto a "point map" and then hierarchical cluster analysis to group the items into "clusters", resulting in multiple possible cluster maps ranging from 2-15 clusters.
- **Session 3 ("refining"):** Participants reviewed the cluster map selected by the research team, refined the sorting of statements into each cluster, and named final clusters reflecting the domains of uncertainty.

Findings

- 34 participants engaged in GCM across the two groups. (Table 1)

Table 1. Demographic Characteristics

Characteristic	N (%)
Age, years - mean (range)	45 (21-76)
Female	22 (64.7)
Race	
Black	23 (67.6)
White	7 (20.6)
Other	4 (11.8)
Highest Level of Education Completed	
Less than High School Degree	1 (2.9)
High School/GED*	22 (64.7)
College Degree	8 (23.5)
Post Graduate Degree	3 (8.8)
Annual Household Income	
<\$10,000	13 (38.2)
\$10,000-\$24,999	7 (20.6)
\$25,000-\$49,999	8 (23.5)
\$50,000+	3 (8.8)

* GED = General Education Development tests certifying high-school equivalency

- Group 1 generated 47 statements, forming 7 clusters: *self-care and treatment, causation, diagnosis and treatment plan, trust in provider and institution, accessibility, financial considerations, and alternative care options.*
- Group 2 generated 52 statements, forming 6 clusters: *consequences, severity, emergency room services, primary care options, finances, and psychological concerns.*
- Table 2 illustrates some of the idea statements identified by participants.

Table 2. Idea Statements

• What is causing your symptoms
• How long you can wait for answers
• What the bill will be
• If you will be put in a hallway bed
• Whether you will be talked down to
• If you are having side effects from medications
• Whether the doctor will explain what tests are going to be done
• Which facilities you can trust

- Across two rounds of GCM, patients identified 13 domains of uncertainty.
- The team organized these domains into two broad categories: external factors and internal factors. (Table 3)
- Organization of domains may inform future development of interventions to help manage patient uncertainty, as external and internal domains of uncertainty likely require different types of interventions.
- While some of these domains (i.e. "severity" and "alternative care options") map to domains already acknowledged in existing conceptual models of ED use, others (i.e. "psychological concerns") are novel and suggest potentially unexplored drivers of ED use.

Table 3. Domains of Uncertainty

External Factors	Internal Factors
Emergency room services	Consequences
Primary care options	Severity
Finances	Psychological concerns
Trust in provider and institution	Self-care and treatment
Accessibility	Causation
Alternative care options	Diagnosis
	Treatment plan

Conclusion and Implications

- While prior work described illness uncertainty related to a specific health condition (Mishel 1981; Mishel 1988), this is the first study assessing uncertainty related to symptoms not yet linked to a specific disease process.
- Future work is needed to:
 - 1) replicate this work across a larger, broadly representative sample of individuals who seek ED care to further conceptualize the concept of uncertainty related to experiencing symptoms.
 - 2) explore interventions targeted to the various patient-identified domains of uncertainty.
- **Limitations:**
 - The study was conducted at two EDs within the same health system in an urban setting. Findings may not be generalizable to other health systems in different geographic locations.
 - We are unable to comment on how these domains of uncertainty trigger patients to seek ED care, as this was outside of the study scope.

References

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