Contextual factors interfacing with quality of care in the emergency department: A micro-ethnographic study

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ARTICLE INFO	ABSTRACT
Article type: *Original article* *Article History*: Received: 2-Jun-2019 Accepted: 5-Nov-2019 *Key words:* Contextual factors, Emergency, Ethnography, Triage	***Introduction:*** Triage in the interactive atmosphere of the emergency department (ED) has been described as complex and challenging. The influence of nurses' belief systems on triage decision making has not to the authors' knowledge been addressed. This study attempted to gain an understanding of the ED nurses' culture of practice with respect to contextual factors that affect triage decision making. ***Materials and Methods:*** A focused micro-ethnographic study based on Spradley's developmental research sequence (DRS) has been conducted in the emergency department of the Mashhad University hospital, Iran, from February 2014 to February 2015. Data were collected during 300 hours of participant observations that were accompanied by formal and informal interviews, then analyzed based on Spradley's DRS. ***Results:*** Nine study participants were formally interviewed. From these interviews, eight core beliefs emerged related to nurses' culture of practice: namely, triage decision making is arbitrary; the facility/locale of the emergency medicine department is the pivotal contextual factor affecting decision making; not every nurse can be assigned to triage; each patient assumes the existence of an emergency condition; the on-duty physician must be known; triage decision making must be considered plausible by colleagues; "they" tell us something, we should do something else; and triage guidelines are not practical. ***Conclusion:*** Contextual factors have a strong tendency to guide triage decision making and violate the principle of patient acuity (that is, that patients with the most acute medical conditions should be prioritized). In response, triage guidelines need to integrate the priorities of patients, nurses, physicians, and administrators.

Introduction

Hospital triage in the emergency department (ED) is defined as the allocation of priority for provision of care among patients in the emergency department (1). Triage nurses use triage scales to facilitate evidence-based practice and ensure patient safety (2).

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Most studies have indicated that the reliability of triage scales is far from being close to perfect and varies from moderate to substantial (5). To improve triage scale reliability, conscious recognition of contextual factors affecting triage decision making is required (6). Contextual factors have the potential to reduce the effectiveness of nurses' decision making with respect to triage in the emergency medicine setting, resulting in incorrect triage of patient acuity (and endangering of patients' safety) (7).

Accordingly, experts have for a long time been calling for more study on other variables that affect triage decisions (8). These experts have argued that, despite extensive research in the area of clinical decision making, much of the context informing the decision making of triage nurses requires further clarification (6). It has been proposed that naturalistic studies could shed light on the clinical context within knowledge gap research (9). Other variables in triage decision making related to staff, patients, and clinical environment have also been studied (10-14); however, few studies have used an ethnographic method to identify the contextual factors that inform triage decision making (15,16).

Triage decision making, as a face-to-face interaction, is a highly complex and interactive phenomenon that must be explored using a naturalistic methodology. Moreover, triage decision making has specific attributes that make ethnography the most appropriate method for its exploration. The complexity of triage (17), institutionally embedded ethical dilemmas in triage (18), physician–nurse or patient–nurse interpersonal conflicts (11), patient dumping as an illegal practice (19), malpractice related to under-triaging (1), and the significant financial conflict of interest between hospitals and patients are the types of decision-influencing attributes that an ethnographic method could assist with understanding(20).

Ethnography, which can be defined as the work of describing a culture, has a unique power to get "under the skin" of a research problem through direct and prolonged observation (21). Culture, as the shared acquired knowledge of a group of people, has

been used to interpret experience and generate behavior (22). Spradley's developmental research sequence (DRS) is an ethnographic method that brings an explicit, systematic, and rigorous approach for the collection and analysis of research data (23). Understanding the existing beliefs regarding the culture of triage could provide unique insight into how contextual factors affecting triage decisions are perceived by triage nurses (15).Nurses have a unique role in assigning triage levels to patients. Their decisions are influenced by their values, rituals, and belief systems (24,25).

Nurses' belief systems provide a mirror into triage decision making and its diverse dimensions, and reflect the reality of the culture of care at a given facility (21).

The aim of this study is to gain an understanding of the culture of practice with respect to contextual factors that affect ED nurses' triage decision making.

Materials and Methods

Design
A focused micro-ethnography has been performed based on Spradley's developmental research sequence(DRS) (22).

Ethical approval
The present study has been approved by the Ethics committee of Mashhad University of Medical Sciences, Iran, and by the disaster management committee of the hospital. Informed consent was obtained from all staff involved in the study. The principles of professional responsibility and ethical conduct developed by American Anthropological Association (AAA) were utilized in the study (26). All names are pseudonyms.

Setting
The hospital, as a referral tertiary-care center, has 202 beds and a total area of 24,000 m². Located in the city of Mashhad in the northeastern area of Iran, the hospital offers all specialty services with the exception of gynecology, obstetrics, and pediatrics. At hospital, more than 150,000 patients present annually to the emergency department; about half of these patients are trauma patients from the Northwest part of the city. The emergency department staff includes 36 Registered nurses (RN), 2

licensed practical nurses (LPN), 10 physicians (GP), and 6 ancillary staff, The ED has 10 inpatient beds; the triage room is open 20 hours a day, and closed in the morning from 2:00 to 6:00. Triage nurses categorize patients into five levels: level I (red), level II (violet), level III (green), level IV (blue), and level V (white). Critically ill and ill patients are referred to sections I and II in the ED, respectively. Patients assigned to level V are considered nonemergent and redirected to the hospital outpatient clinic, which is open only during the mornings (08:00-12:00) and afternoons (16:00-20:00) and is closed on some days (including public holidays).

Data collection

This study was conducted from February 2014 to February 2015. One of the researchers (A.M.) was a participant observer and actively involved in daily practice. Continuous 6-hour observation sessions occurred, eventually leading to a total of 300 hours of participant observation. Participant observation gradually increased from passive to complete participation. The data used in the study were collected through ethnographic observation of cultural behavior, artifacts, and spoken messages and by observing the interactions among the researchers, staff, and patients. A.M. has several years of experience in triage clinical practice. He has also published several books and papers about triage.

Observations were recorded via expanded and condensed field notes. A fieldwork journal was kept to record experiences, ideas, fears, mistakes, instances of confusion, breakthroughs, and problems that surfaced during fieldwork in order to reveal any bias could affect data interpretation (22). Formal and informal interviews were conducted and audio-recorded to collect data. Purposeful sampling was used to locate culturally sensitive informants. Out of the 36 ED nurses, 9 who had worked for more than 2 years in triage were presumed to be initial candidates for formal interviews due to their long-standing experience; other staff members were informally interviewed.

The semi-structured interview questions consisted of descriptive, structural, and contrast questions in relation to each stage of the data-collection process. The questions were based on Spradley's interview questions for ethnographic studies (22). During the interviews, specific actions of the participants (such as expressing interest; expressing ignorance; avoidance of repetition; and taking turns) were considered. The interviews were tape recorded and transcribed verbatim. One researcher (A.M.) conducted all of the interviews in the ED.

Descriptive, focused, and selective observations were conducted. Descriptive observations included grand-tour and mini-tour observations, and major topics were investigated using a descriptive questions matrix that included questions such as "What types of activities occur in the triage room?". Participants completed lists that allowed for narrative answers to structural questions during interviews, which were held during focused observation (27). One of the structural questions posed was "What contextual factors affecting triage decision making in the ED?". Formal interviews were most frequently performed to compare and contrast the meaning of each cultural subcategory in selective observation (28). One example of a question used to evince comparisons and contrasts was: "How do contextual factors differ?" (Appendix A).

Data analysis

Data collection and analysis followed a cyclical pattern (23), and taxonomic, domain- and component-specific, and thematic analysis were conducted throughout the research period. The analysis field notes recorded generalizations, analyses of cultural meanings, interpretations, and insights into the culture studied (22). Contextual factors emerged during domain analysis as a mixed domain. With respect to semantic relationship, strict inclusion was used to include descriptions of different kinds of contextual factors from the domain-analysis worksheet, including covered terms and included terms (Table 1). Similarities among included terms based on the same semantic relationship were explored using free lists and interviews in taxonomic analysis (Table 2). Free list data demonstrated a type of cultural agreement. The individual salience was computed using inversely ranked items

on an individual's list and, likewise, items that increased by one rank in moving up the list. Subsequently, the rank was divided by the total number of items the individual listed (29). All individual salience scores for each item were summed and divided by the number of respondents (27). Attributes (unit of meaning) associated with cultural subcategories have been presented as a paradigm in the componential analysis (Table 3). A.M. analyzed data and other authors critically revised the analysis process.

Table 1: Domain analysis worksheet for contextual factors affecting triage decision making

Semantic relationship: cause-effect
Form: Result of acts
Example: Agitated attendants of patient influenced the nurse's decision making in triage.
Contextual factors   ⟶   Included terms: Nurse, personality Nurse, clinical knowledge Physician Emergency nurse Patient and attendants Facilities Overcrowding Outpatient clinic Specialties Rules and laws Nurse, experience Therapeutic process in different shifts Safety and guards
Structural question: What contextual factors affect triage decision making in the ED?

Table 2: Free-listing response regarding contextual factors

"What contextual factors affect triage decision making in the ED?"		
Response	**∑ Individual Salience**	**Composite Salience**
Facilities	8.46	0.94
Triage nurse	7.16	0.80
Physician	4.04	0.45
Patient and attendants	2.46	0.27
Emergency nurse	0.97	0.11
Rules and administrators	0.84	0.09

Notes: Responses are listed in order of composite salience, highest to lowest. ∑Individual Salience=sum of all of the individual salience values. N=total number of all respondents. (Composite Salience = ∑ Individual Salience/N).

Table 3: Paradigm of contextual factors based on dimensions of contrast

Subcategories	Key	Moderate	Slight
Triage nurse	+		
Physician	+		
Patient and attendants		+	
Emergency nurse			+
Facilities	+		
Rules and administrators			+

Trustworthiness

The credibility of the study was optimized through a diverse set of elements that included prolonged field experience, the observation of several cultural situations, varied time sampling, continuous fieldwork journaling, triangulation characterized by concordance among cultural behaviors, artifacts and speech messages, the establishment of trusting relationships with triage nurses, and verification of findings with triage nurses and colleagues.

Dependability was ensured by providing comprehensive and clear descriptions of research methods and stepwise replication over a longer period of time (30).

Results

Thirty-six nurses working in the ED (of whom 12 nurses contributed to triage) were observed during a total observation period of 300 hours. Nine nurses had more than 2 years of experience in triage practice. The interviews and the free-listing survey were administered to the 9 triage nurses who were culturally sensitive informants due to their triage experience as previously described. The ages of the participating nurses ranged from 26 to 35 years old (31$\pm$2.4); 55% of them (n=5) were male. All nurses were registered and had a baccalaureate of science in nursing.

The shared knowledge of the nurses afforded the authors considerable insight into their beliefs on the contextual factors that affect decision making during triage. Contextual factors have different impact on nurses' decisions. Some contextual factors had a greater impact (such as facilities, physicians, and triage nurses) and some a lesser impact (patients and their attendants, emergency nurses, rules, and the hospital administrators) on triage decision making (Table 4).

Table 4: Shared meaning system of the triage culture among emergency nurses

Contextual factors influencing triage decision making	Key	Facilities
		Physician
		Triage nurse
	Moderate	Patients and attendants
	Slight	Emergency nurse
		Rules and administrators

Beliefs reflect culture of care as well as personality of ED. Eight main beliefs surfaced and can be expressed as follows: triage decision making is arbitrary; the facility/locale of the emergency medicine department is the pivotal contextual factor affecting decision making; not every nurse can be assigned to triage; each patient assumes the existence of an emergency condition; the on-duty physician must be known; triage decision making must be considered plausible by colleagues; "they"

tell us something, we should do something else; and triage guidelines are not practical.

Triage decision making is arbitrary: There is a general belief that several factors (including clinical and non-clinical) affect triage and it may generate loose decision criteria when triage nurses make clinical decisions. It may end up to arbitrary decisions which being affected by nurse's personality traits, knowledge, and level of experience. Besides, other factors such as physician in charge, nurse colleague, overcrowding, specialties, and others may intensify this inconsistency. Nurse Reza said: "Now, everyone decides in a different manner. For example, when you are in the triage room sitting next to your colleagues, you realize that decisions were made at somewhat differently than you thought they would be. Often, those nurses who have similar experience in the ED are on the same level, and similarly allocate triage level for ED patients. Some new nurses have different ideas. They have even assigned patients into the blue instead of the violet [level]".

The facility/locale of the emergency medicine department is the pivotal contextual factor affecting decision making: Triage nurses believe that only patients whose therapeutic needs can be fulfilled in the hospital should be admitted to the ED-the so-called "we can do something for him" admission.

It`s the most common approach towards patients that do not have emergency medical conditions in the triage room. However, triage nurses usually admit critically ill patients under any circumstances; non-emergency patients often are directed to other healthcare settings because of a lack of defined access to specialty services for non-emergency patients. It's rare to have patients experiencing an emergency be diverted to other hospitals because of the unavailability of a particular specialty leading to patient dumping.

Nurse Safa related the following story: "A patient with abdominal pain went to hospital A; they didn't admit and told him go to the surgical emergency center of hospital B; however, hospital B also did not admit and told the patient to go to hospital C; after hospital C didn't admit he went to hospital D; he finally [received a diagnosis of

peritonitis] and underwent surgery in hospital D".

Not every nurse can be assigned to triage: Nurses believe that the experience, knowledge, and even the personality traits of triage nurses significantly influence nurse competency in triage. Triage nurses must handle many miscellaneous and stressful situations. They need very well-developed interpersonal communications skills. Nurse Pouria elaborated on this subject: "Nurses have different personalities, for example someone like Mrs. X, you know her? She tries to treat most patients in triage …. and send them back home, keep them away from the ED. For example, she takes their blood pressure, gives medicine to them—simple medicine. To explain further, if a patient told [Mrs. X] that he had a headache, she would give him something and then tell him to "go and come tomorrow". [In contrast to this approach,] Mrs. Y fears patients and interacting with them."

Each patient assumes the existence of an emergency condition: Nurses believe that the attitudes and personalities of individual patients may impact triage decision making, particularly when patients assume their situation is a medical emergency. Nurses believe that patients are not satisfied with lengthy waiting times [or with a] prioritization system. Nurse Ahmad said: "When the outpatient clinic is closed, what should we do?! The patient complains of diarrhea and I think his situation is not a medical emergency, but he insists on—he assumes he has an emergency and asks for a prompt physician visit. I feel pressure from him".

Nurse must be aware of the on-duty physicians and their treatment style: Nurses always pay attention to physicians' orders because the feedback of the physician plays a key role in decision making during triage. Emergency severity index triage system is closely associated to resources needed to treat patients. As with nurses, physicians also have diverse personality traits and therapeutic styles. Patients with similar complaints may receive rather different therapeutic regimens from different physicians. Physicians also have different levels of sensitivity with respect to nurses' decisions regarding allocating patients into different triage categories. Some physicians "bounce" patients back to the triage room so that they are diverted into higher or lower range categories. Nurse Javad said: "Most nurses bear in mind which physician is visiting patients while they are deciding to assign a triage level to a patient, [and consider] how the physician accepts [patients being at] a particular triage level".

Triage decision making must be considered plausible by colleagues: Colleagues (such as emergency nurses or physicians) try to exert an influence on triage decision making. Overcrowding in ED is one common reason that pressure is put on triage nurses to allocate patients in a certain way. Furthermore, the possibility also exists that some nurses encourage other nurses to "dump" patients to lessen the ED workload. *The field notes described this process in one section:* "I (the researcher) was in the triage room. Suddenly, one of the emergency nurses [approached] the triage nurse and told her not to send [more patients] into the treatment area because it`s overcrowded".

"They" tell us something, we should do something else: Managers give nurses orders to the effect that patients should not be turned from the ED without seeing a physician. Administrative rules clearly indicate that each patient must be seen in the ED, but no active monitoring exists to protect this rule. Nurse Sara said: "[The dean of the hospital] told me that you don`t have [the] right to reject patients from the triage room. As a manager, I think he is obligated to say this; we must read between the lines."

Triage guidelines are not practical: Triage guidelines have been developed in order to increase the reliability and validity of triage decision making among triage nurses. Nurses believe that local guidelines are not comprehensive enough to support nurses in every situation as they allocated patients to different triage levels upon their presentation to the ED, and international guidelines have high standards that many hospital emergency departments are not able to meet. Nurses may also not be interested in restricting themselves to triage guidelines. Nurse Rouya said: "[The current guidelines for triage do not] cover all of the patient's conditions and other staff don't pay attention to the guideline. For example, a

patient with diarrhea should not be attended to here, but according to the guidelines we must assign him to the blue level. I [assigned him to this level], but the attending physician did not visit him."

Discussion

The findings of this study provide deep insight into the ED nurses' culture of practice regarding contextual factors affecting triage decision making in one ED. Nurses believe that contextual factors considerably affect their decisions, resulting in reduced concordance with respect to triage decisions. Several studies have shown that the inter-rater reliability of triage scales is far from almost perfect (5). Phrases used to describe the inconsistency of nurses' decisions include "triage decision making is arbitrary" and "triage guidelines are not practical". The current study reveals that triage scales as a practice guideline should address barriers related to a wide variety of contextual factors, including factors related to social context and organizational and environmental context, and should be adjusted to different groups of stakeholders (i.e., nurses, physicians, patients, and administrators) (31, 32).

Several studies have supported the roles of patients, nurses, and physicians in triage decision making. Nurses have expressed low levels of agreement on triage decisions between nurses and patients, as "each patient assumes that she/he has an emergency medical condition". The results of this study showed that considerable discrepancies exist among ED staff in identifying patients who do not in fact have emergency medical conditions requiring immediate care. Additionally, uncertainty in triage decision making is a documented source of stress (12). Similar to our findings, a review showed variability in levels of agreement on defining nonemergent patients; Durand et al have reported a fair level of agreement between clinicians and patients on what constitutes a non-emergency condition in those seeking care at the ED (33). In agreement with other studies, nurses believe that patients without emergency conditions are difficult to reliably identify with simple triage assessment (34, 35). Patients without emergency medical

conditions have multiple reasons for visiting EDs, and this may help explain why recognizing patients without these conditions is so challenging (36). Generally, the concordance of nurses with respect to triage allocations in the emergency department is not almost perfect in regard to case-mix (3,5); low levels of agreement in non-emergency situations has been reported between nurses with patients (37). In this way, Fry has mentioned that beliefs implicit within practice are related to conflict with public expectations (15); Ramacciata indicated that these beliefs can cause further tension and aggression (11). In addition, moderate levels of agreement between nurses with physicians (5,38) forces nurses to adjust their decisions so that they are congruent with those of the attending physician to the extent possible, as they believe it's necessary to remind the on-duty emergency department physician on any given day.

The particular facility the patient reports to with an emergent medical condition (and the facilities that institution provides) are both pivotal contextual factors that also affect triage decision making. In spite of this critical role, these two factors have not been properly discussed in triage studies. Patient dumping, as a malpractice related to triage decision making, is closely connected to facilities and number of individuals with relevant specialties at a hospital (19). Most critically ill patients not allowed admission to a hospital have been rejected because of limited access to specialty services; as specialty services are costly and expensive, hospital try to control public access by implementing gatekeeping policies as part of triage (39). Administrators may implicitly implement gatekeeping policies in triage; nurses expressed this as part of the statement "'they' tell us something, we should do something else".

4.1. Limitations

Culture as a multidimensional domain requires broad and comprehensive investigation that was not possible in this study, during which we mainly focused on nurses' shared knowledge based on the ethnosemantic method devised by Spradley. These limitations could be eliminated by including patients' beliefs in further studies.

However, the Mashhad University hospital was an appropriate locale for this study, as it represented the patient populations of all of the hospitals in the city. In the future, a multicenter approach could enhance the transferability of the study.

Conclusion

Triage guidelines need to make a step forward and integrate the priorities of patients, nurses, physicians, and administrators due to the influence of contextual factors on triage decision making. The findings of the current study call for a new generation of integrated triage scales rooted in (and expressing process items related to) the hospital's therapeutic and administrative process. Isolated triage scales in the ED should be redeveloped for the purpose of integrating them into the clinical pathway of the hospital.

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