Literature Review: Patients’ and Health Care Providers’ Perceptions of Stressors in Critical Care Units

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**Abstract**

The purpose of this article was to provide a historical review and analysis of the research literature focusing on patients’, nurses’, and health care providers’ perceptions of stressors in the critical care setting. A narrative historical literature review method was used. The inclusion criteria include English-language studies of stressors as perceived by patients and health care providers from 1984 to 2011. Several studies investigated perceptions of stressors using the Environmental Stressors Questionnaire and the findings did not show any significant changes of stress perception over time since 1989 until the present. There is a need to further investigate stress perceptions in the health care setting using a mixed qualitative and quantitative approach to provide a more precise description of stressors and stress perceptions in the critical care setting.
The first intensive care units (ICUs) emerged in the 1950s. The purpose of these units was to provide holistic care to critically ill patients who needed intensive one-to-one care. The purpose of this article was to provide a historical review and analysis of studies investigating patients’, nurses’, and other health care providers’ perceptions of stressors in the critical care setting. The analysis presents findings, strengths, and weaknesses of studies investigating this topic from 1984 to 2011 and identifies changes in stress perceptions over that period. It is important to describe perceptions of stress to allow nurses and other health care providers to engage in stress reduction strategies and improve care provided to patients and their families in critical care units.

A THEORETICAL MODEL OF STRESS
Lazarus and Folkman’s 1 model is presented as a theoretical perspective on stress and stress perceptions in order to better understand this phenomenon. This theory provides a definition of stress as a concept, described the components of stress perceptions, and highlighted the individual nature of stress perceptions, forming the basis for analysis of stress perceptions in the critical care environment. Their Theory of Stress and Coping is a particularly relevant theory to integrate and refine the variables related to patients’ perceptions of stressors, health care providers’ perceptions of their patients’ stressors, and outcomes reflected in patients’ satisfaction with care. This theory defines stress as a concept and presents a comprehensive description of stress perception as a behavioral human experience. The propositions presented by the researchers will help in understanding stress, stressors, and stress perception phenomena.1
Since its first presentation in 1966, this comprehensive theory has undergone several essential revisions. In the latest version, presented in 1991, stress is an interaction between the person and the surrounding environment. Psychological stress is defined as “a relationship with the environment that the person appraises as significant for his/her well-being and in which demands tax or exceed the available coping resources.” The formulation of a stressful event depends on 3 main components: (a) cognitive appraisal and coping, (b) personality mediators, and (c) environmental factors. These 3 components must be studied interactively to develop a comprehensive view of stress. Each component is addressed in the context of Lazarus and Folkman’s theory.

Stress is an interaction between the person and the surrounding environment.

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Cognitive Appraisal and Coping

The concept of “appraisal” was first introduced by Arnold in his emotion research. This concept is crucial to understanding stress-related transactions. Appraisal is based on the idea that emotional processes, including stress reactions, are dependent on one’s expectations regarding the outcome of a specific encounter and the importance of that outcome.

Folkman and colleagues presented a definition of cognitive appraisal as “a process through which the person evaluates whether a particular encounter with the environment is relevant to his/her well-being.” Cognitive appraisal is the mental process by which an individual recognizes a stressor and tries to use the available personal and environmental resources to deal with its demands. According to Lazarus, cognitive appraisal consists of both primary and secondary appraisal.
In primary appraisal, the person analyzes the stressor and determines if it is positive or negative, considering 3 aspects of the stressful situation, goal relevance, goal congruence, and type of ego involvement. Goal relevance describes the extent to which an encounter relates to issues about which the person cares. Goal congruence defines the extent to which an episode is consistent with one’s personal goals. Ego involvement is related to aspects of personal commitment such as self-esteem, moral values, ego ideal, or ego identity. Ego involvement involves self-reflection about a stressful encounter and whether the stress affects one in a negative or positive way.

Secondary appraisal is concerned with coping. In this appraisal process, the individual determines if he/she can cope with a particular stressor. For example, a patient who is diagnosed with cancer is given many treatment options and may be able to cope with the demands of deciding on treatment options. Conversely, another patient may feel unable to cope with the treatment plan.

**Personality Mediators**

The patient’s perception and appraisal of the stressor determine if it results in stress. Stress requires that the individual perceive his/her ability to cope with the demands of the stressor as insufficient. When a patient faces life-threatening illness and is admitted to the critical care setting, the situation often demands life support procedures. The patient’s perceptions, previous experiences, and role position affect the personal perception of what constitutes a stressor in such a setting. Role position is the position that the person represents in his/her surrounding environment. For example, an individual present in the hospital may manifest the patient’s role position; at the same time this patient may be a father for a small family and have many social and financial obligations.

**Environmental Factors**
The environment is represented by all the things present in the patient’s surroundings. The critical care environment is filled with high-technology machines such as cardiac monitors, mechanical ventilators, infusion pumps, and rotating beds. The sound level in the ICU has been noted at 60 to 80 dB compared with the 55 dB common in the home setting.\textsuperscript{5,6} Patients and health care providers interact in the high-technology health care environment. The cognitive appraisal of stressors depends on the role that each individual enacts in that environment. For example, health care providers are individuals who provide treatment and care for the patients. Patients are critically ill individuals who require more intensive and invasive methods of monitoring, care, and treatment. The patient’s medical diagnosis, age, sex, ethnicity, educational level, presence of family members, marital status, and type of medical insurance may affect his/her cognitive appraisal of what constitutes a stressor. The use of personality mediators with the available resources affects the patient’s ability to cope with illness and his/her satisfaction with care. In the ICU environment, stress may be related to surgery or therapy, can be psychological or physical, or can be related to relationships with health care personnel or to the ICU setting.

Health care providers’ perceptions of what constitutes a stressor from the patient’s perspective are based on their experience, level of education, sex, and ethnicity. The provider’s cognitive appraisal of what forms a stressor for the patient directs the plan of care to address the critically ill patient’s needs. The outcomes of stressor perceptions will enable health care providers to prioritize and manage their patients’ stressors, improve quality of care, and subsequently increase patients’ satisfaction.

The propositions presented by Lazarus and Folkman’s \textsuperscript{1} theory direct our understanding of stress, stressors, and stress perception phenomena. Their formulations of stress and stress perception will guide the analysis of the related literature.

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\textbf{Literature Search Methods}
Multiple studies were identified using CINAHL, MEDLINE, and PubMed and search terms such as “intensive care unit stressors” and “patients’ and nurses’ perception of stressors in the intensive care unit.” Over the past 30 years, researchers have documented the environmental stressors that critical care patients experience in the ICU. The literature review is presented in a historical chronological framework. Both quantitative and qualitative studies are included in this review.

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Discussion of critical care environment stressors emerged in the literature in the late 1980s. Cochran and Ganong were the first researchers to address nurses’ and patients’ perceptions of stressors in the ICU, noting “It is important for nurses to know what seems most stressful from the perspective of patients, rather than from their own perspective.”

These researchers compared nurses’ and patients’ perceptions of ICU stressors in a major hospital in the United States. They used a Likert-type questionnaire, the Intensive Care Unit Environmental Stressor Scale (ICUESS), to measure the stressfulness of commonly occurring events in the ICU environment. The sample included 23 ICU nurses and 20 ICU patients from the same hospital. They found that patients rated “having tubes in nose or mouth” as most stressful, followed by being “stuck with needles,” “being in pain,” “not being able to sleep,” and “being thirsty.” Nurses perceived “being tied down by tubes” and “not being in control of self” as significantly more stressful than did patients. The researchers noted several limitations of their study, including a small sample size and failure to pair nurses and patients during data collection that may have affected the accuracy of the findings. Moreover, participants may have been confused about the definition of the word “stressful” because no specific definition of a stressor was provided to participants.
Cornock 8 titled his study “Stress and the Intensive Care Patient: Perceptions of Patients and Nurses.” He conducted his study in the United Kingdom, replicating Cochran and Ganong’s 7 study. Participants included 71 patients and 71 nurses from 2 ICUs. The author used an environmental stressors questionnaire (ESQ). Patients in the study rated items related to their illness and physical comfort as being most stressful; being thirsty was rated as the greatest stressor, followed by having tubes in nose and mouth and not being able to communicate. Nurses rated being in pain as the greatest stressor from the patient’s perspective, followed by not being able to communicate and having tubes in the nose or mouth. The researchers noted that nurses rated stressors presented in the ESQ more highly than did patients, but overall the outcomes were similar to those found by Cochran and Ganong.7 The discrepancy between nurses and patients in rating the stressfulness of items included in the questionnaire was explained by the fact that the patients were asked to complete the questionnaire 2 days after being discharged from the ICU. Patients may have forgotten what they experienced in the ICU. Different factors affect the perceptions of stressors among patients and nurses. The nurses work in the critical care setting for long hours, and it is their work environment. However, patients are present for shorter periods since they come to be treated for a critical illness. The researchers recommended future study pairing patients and nurses, distinguishing between patients with planned and unplanned admissions, and considering marital status as a demographic variable.

Soehren 9 investigated stressors perceived by cardiac surgical patients in the United States. The sample included 43 postoperative first-time cardiac surgical patients. The patients rated having oral and nasal tubes in place as the major stressor. The highest rated psychological stressors were loss of control and missing one’s spouse. The author suggested interventions to reduce stress and enhance the recovery of cardiac surgical patients. It must be noted that no nurses were included in this study as subjects.
Another study done in Brazil by Novaes and colleagues addressed patients’, relatives’, and health care team members’ perceptions of stressors in the ICU. The participants included 50 ICU patients, 50 relatives, and 50 members of the professional team involved in their care. A cross-sectional analytical survey was conducted in a general ICU unit of a private hospital using the ICUESS. “Being in pain,” “having tubes in the nose or mouth,” “being restrained by tubes,” and “being unable to sleep” were considered by all participants as the main stressors. Health care providers perceived the intensity of stressors as significantly greater than either the families or patients.

Perceptions of stressors by patients and nurses were investigated by So and Chan in the critical care units of 2 major hospitals in Hong Kong using a Chinese version of the ICUESS. The sample included 50 patients and 111 nurses. “Being tied down by tubes” was considered the major stressor by both patients and nurses. “Not being in control of yourself,” “not being able to sleep,” and “being thirsty” were ranked among the 6 top stressors by the patients but were ranked 9th, 11th and 40th, respectively, by nurses. Patients reported that the presence of strange machinery, loud and unfamiliar noises, noxious smells, constant light, lack of privacy, separation from family, and immobility all contributed to a stressful environment in the critical care unit. This was the first study to investigate this topic in China. The study included a good sample size of nurses (n = 111), but the small convenience sample of patients (n = 50) may have affected the data analysis and statistical findings. Another possible limitation is that the ICUESS may not be culturally sensitive for Chinese participants. The authors recommended considering length of stay in the ICU as an additional factor influencing patients’ perceptions of stressors.
Granja and colleagues 12 studied the experiences of patients during their ICU stay and correlated those experiences with their health-related quality of life. This was a retrospective study with a sample of 464 patients who participated 6 months after being discharged from the ICU. The experiences reported as being most stressful were tracheal tube aspiration (81%), nasal tube (75%), family worries (71%), and pain (64%). Respondents who experienced nightmares and dreams during their ICU stay represented 51% of all participants, and 14% of those reported that constant nightmares disrupted their daily life. In addition, 41% of participants reported sleep disturbances 6 months after discharge; 38% reported difficulties in concentrating on daily activities; 36% had difficulty remembering recent events, and more than half of the patients reported more fatigue than before the ICU stay. Patients may have forgotten their experiences in the ICU because the data were collected 6 months after discharge from the ICU, a possible limitation of this study.12

Another study was conducted in Jordan by Hweidi,13 which assessed patients' perceptions of stressors in the critical care unit and the effects of personal characteristics on their stress perceptions. Data were collected from 165 patients 2 to 3 days after having been discharged from the ICU. The ESQ was also used in this study. The main stressors reported included (1) having tubes in the nose or mouth, (2) being in pain, (3) not being able to sleep, (4) hearing the alarms from the machinery, (5) being thirsty, and (6) not being in control of one's self. Patient stressor perceptions were influenced by their demographic characteristics. The authors found that single patients perceived higher stress than did married patients. The study suggested identifying patients stressors can guide interventions to relieve pain, keep a family member near the patient, decrease noise, and minimize light in the environment.13
In 2008, Soh and colleagues studied the perception of ICU stressors among patients in a Malaysian Federal Territory hospital. The aims of the study were to determine the ICU stressors experienced by patients. This was a cross-sectional study that included 70 patients. No nurses were included. Based on study findings, the main stressors perceived by patients included pain, being stuck with needles, boredom, missing their spouses, and feeling hot or cold. In this study, the researchers used the Environmental Stressor Questionnaire translated into the Bahasa Malaysian language. Psychometrics were used to assist with the translated version. The authors recommended future study to explore the influence of patients’ cultural background, type of sedation, and reasons for ICU admission on perceptions of stressors.

The most recent study of patients’ and nurses’ perceptions of stressors in the ICU was done by Yava and colleagues in Turkey. The objectives of this study were to identify ICU patients’ perceptions of stressors and the perceptions of nurses regarding ICU patients’ stressors. This was a descriptive study that included 155 patients and 152 nurses. The ICUESS was used to measure stressful events experienced in the ICU setting. The study found both patients and nurses rated physiological stressors as most important. The top 5 ICU stressors reported by patients were fear of death, being thirsty, being in pain, not being able to sleep, and having tubes in the nose or mouth. The nurses reported the same stressors and added having no privacy to the stressors perceived by their patients. Fear of death was rated as the top stressor by both patients and nurses. In general, medical ICU participants were more affected by stressors than those in surgical ICUs. Another finding was that patients with planned admissions perceived lower levels of stress than did patients with emergency admissions. The researchers noted that the use of a convenience sampling method could have affected the generalizability of their findings and that the recruited subjects were homogenous in sex.

SUMMARY OF LITERATURE REVIEW
Many studies have noted the stressful nature of ICU experiences for patients, but the complex nature of a stress response makes it difficult to represent stressors in an objective way from patients’ and nurses’ perspectives. The frightening experience of the critical care unit, whether associated with the disease process or related to the critical care environment itself, elicits a stress response. Because stress is considered a major cause of illness, the recovery of a critically ill patient may be delayed when physical, environmental, social, and psychological stressors are not managed or controlled in health care settings.

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Lusk and Lash 16 noted that psychological stress can also be caused by uncaring nurses and other health care providers who talk or laugh with no concern for the critically ill patient. The interventions proposed to decrease psychological stressors include having health care providers who are able to perceive and manage their patients’ stressors and increase the patients’ feeling of safety by allowing family members to stay with the critically ill patient.

Several studies investigating the perception of stressors by patients using the ICUESS found that being in pain, having tubes in the nose or mouth, being restrained by tubes, and being unable to sleep were considered by the patients, relatives, and health care professionals as primary stressors. The implications of these findings are helpful in guiding health care providers to implement stressor-oriented treatment plans. The differences found in patients’ and providers’ perceptions of stress suggest a need to personalize care based on what the patient perceives as a stressor. This requires the identification of stressors experienced by individual patients as the basis for the plan of care.
Cochran and Ganong emphasized that nurses need to know what is stressful from their patients’ perspectives because nurses play a major role in manipulating environmental factors to produce a more therapeutic setting. Several authors found that ICU nurses perceived the ICU environment as being more stressful for patients than the ICU patients reported. There is a possibility that the ICU patients may not be consciously aware of the stressfulness of a procedure or the ICU environment, because many of them experience the effects of sedation or anesthesia during their stay in the ICU.

Identifying the stressors experienced by patients will improve nursing practice and guide policy making to control the environmental stressors that patients experience. Because pain has been identified as a major stressor, emphasis on pain control is warranted. Similarly, decreasing the level of lighting in the unit may decrease stress. Identifying the stressors that patients suffer from and implementing a stressor-oriented plan of care may affect patient’s recovery and satisfaction with care and improve the quality of care provided to critically ill patients.

Although titled differently, the ICUESS and ESQ are similar. The ESQ was originally developed by Cochran and Ganong. This tool uses a rating scale of 1 to 4, in which 1 = not stressful, 2 = mildly stressful, 3 = very stressful, and 4 = extremely stressful. Part of the questionnaire also asks the respondents to list the 3 most stressful items together with any items they think should be added to the questionnaire. The reliability of the tool has been assessed, and Cornock found a Cronbach $\alpha$ of .70, reflecting borderline reliability. The process of tool development and its testing for validity is not reported in the literature. Because most of the studies reviewed here used this tool, it is not surprising that there is little variation in the rankings of the stressful items presented in the questionnaire. However, it is questionable whether the tool actually measures the stressors experienced by patients in a comprehensive way. Qualitative research with patients recently hospitalized in the ICU may elicit different stressors than those measured by this commonly used tool and may guide the development of a new tool to measure stress perception in the critical care environment. This could lead to more quantitative studies as well.

**CONCLUSION**
Critical care nurses and health care providers are in a strategic position to identify and minimize anticipated stressors that affect critical care patients. They should (1) identify and initiate appropriate interventions to minimize such stressors, (2) promote effective pain control, (3) promote sleep, (4) decrease noise, (5) use appropriate lighting, (6) encourage family participation in the care plan, and (7) effectively communicate with patients and their families.

The findings of the studies reviewed for this article can foster implementation of policies to minimize stressors in the ICU, provide feedback for health care providers about the stressors that their patients experience, and guide the development of effective treatment plans. Findings can also guide future research to investigate this phenomenon in relation to the use of technology in health care settings.

Stress perception in the critical care setting has been investigated in many cultures. The findings of most of the studies reviewed were similar, because many researchers used the ICUESQ. However, there were differences in the rankings of particular stressors; this may be due to differences in sample characteristics, different critical care settings, and cultural discrepancies.

Many studies used quantitative approaches to investigate this phenomenon. Based on Lazarus and Folkman’s theory, stress perception is highly individualized. The degree of stress engendered by any given stressor is difficult to represent quantitatively but can be achieved with the right tool. There is a need to investigate stress perceptions in the current high-technology health care setting of the ICU. The patients’ surrounding environment has been significantly affected by technology, and many treatment options use machines.

Based on the review, no recent studies have been conducted in the United States. There is a need to investigate this phenomenon in more detail without being constrained by the Environmental Stressor Questionnaire list of 50 stressful items. Future research is needed to determine the currency and the accuracy of the findings presented, provide a more detailed description of stress perceptions in the postmodern health care setting, and understand how today’s patients perceive stress in the critical care environment.
References


Keywords: Literature review; Perception of stressors; Stress; Stress in the intensive care unit