



Stress in Radiology Nursing



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ABSTRACT: Nursing continues to be complex and stressful. Radiology nurses are not immune from the pressures and stresses encountered in the radiology department. To understand the concept of stress more fully, a brief history of stress is examined from the work of early theorists: Walter Cannon, Hans Selye, and Richard Lazarus. The physiology of stress with the resulting signs and symptoms is discussed with the specific impact on the modern radiology nurse. Causes and consequences of burnout from constant stress left unchecked are deliberated. Finally, attention is given to strategies used by other disciplines with interventions. Radiology nurses can be employed to manage stress levels and enhance coping skills in a changing health care climate. (*J Radiol Nurs* 2016;35:205-210.)

KEYWORDS: Stress in nursing; Stress in radiology; Stress reduction.

Job stress among nurses is a worldwide issue (Thian, 2013). It is not a secret that workplaces are getting busier. One quarter of employees cite their job as a primary life stressor (NIOSH, 2015). The mantra “more for less” is commonplace in the modern business lexicon as the “maximization of productivity” is sought. Health care and radiology are not immune from this phenomenon. Recent state and national health care initiatives in the United States of America have added to these pressures. The 2011 American Nurses Association Health and Safety Survey listed stress as the top concern among nurses (ANA, 2011).

THE HISTORY OF STRESS

Stress from the Latin word, *stringere*—to draw tight, has been categorized as a response to a stimulus or interaction (Gelsema, Van der Doef, Maes, Akerboom, & Verhoeven, 2005). People can experience external stressors from the environment or internal stressors from a disease. Stress can be positive as “I

graduated” and termed “Eustress.” It can be negative as “You’re fired” and labeled “Distress” (Le Fevre, Kolt, & Matheny, 2006). It can be acute in the case of “flight or fight” or chronic in the case of a “high-pressure job.” Stress has been studied in many environments. Walter Cannon (1871-1945) established the original studies on stress. He investigated the sympathetic nervous system’s reaction to heat and observed that the body responded in the predictable order (Selye, 1946).

Selye advanced Cannon’s efforts by describing stress as the “rate of wear and tear” on the body by stressors (Ward, 2012). He proposed a physiologic connection between stress and illness. Selye hypothesized that stressors might occur in two forms. The first form is physical, in the case of infection, injury, or pain. The second form is psychological as evidenced by fear, anger, or sadness. He coined the term General Adaptation Syndrome (GAS) in which the body seeks to maintain homeostasis (Ward, 2012).

Lazarus (1966) advanced the understanding of stress and methods used to cope with it. He observed that when individuals view a new situation, they must first decide if it is a threat. He termed this as a primary appraisal. As individuals continue to monitor the threat, they evaluate their ability to cope with it. This was termed as a secondary appraisal. At this step, some individuals may decide they are incapable of handling the situation and withdraw. Other individuals, especially caregivers, believe that they should be able to handle the episode and attempt to do so no matter the cost (Ward, 2012).

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The work of Cannon, Selye, and Lazarus acknowledged the stressors leading to burnout. Stress has been regarded as an occupational hazard since the mid-1950s. In fact, occupational stress has been cited as a significant issue in the workplace (Jennings, 2008). Work stress in nursing was first identified in the 1950s (Jennings, 2008). Four sources of work-based anxiety are identified in nursing: patient care, decision-making, taking responsibility, and change (ANA, 2014; Jennings, 2008). Nursing has long been regarded as a stressful occupation. The physical labor, human suffering, working hours, staffing, and interpersonal relationships are central to the nurse's role (Laal & Aliramaie, 2010). Since the mid-1980s, nurse's work stressors have been escalating because of increasing use of technology, continuing rising health costs, and turbulent work environment (Jennings, 2008).

In 1974, Freudenberger devised the term "Burn Out" to describe workers in occupations involving direct interactions with people and their reactions to chronic stress. Burnout is usually perceived as a syndrome characterized by emotional exhaustion, depersonalization, and decreased personal productivity (Aziz & Ahmad, 2015). Work life is not separated from family life, and these domains may conflict. Stress results from the combined impacts of work, marriage, and family responsibilities. The effects of both work and nonwork stress among nurses have been studied. Nonwork stress may have a more pronounced role among nurses because it is a predominately female profession (Jennings, 2008). Women continue to juggle multiple roles in the home and family, and in 40% of cases, women have the sole responsibility as the family breadwinner (Wang, Parker, & Taylor, 2013).

Stress symptoms can be divided up into the following categories: cognitive, emotional, physical, or behavioral. Table 1 outlines common symptoms of stress.

THE PHYSIOLOGY OF STRESS

Acute stressors affect an individual over the short term; chronic stressors affect an individual over the longer term. The GAS developed by Hans Selye is a summary of how individuals respond to stress. The GAS is characterized by three phases: (a) a nonspecific alarm phase, which promotes sympathetic nervous system activity; (b) a resistance phase in which the organism tries to cope with the threat; and (c) an exhaustion phase if the organism fails to overcome the threat and depletes all physiological resources (Aziz & Ahmad, 2015; Gelsema et al., 2005).

Table 1. Common symptoms of stress

Cognitive symptoms of stress include:	Emotional symptoms of stress include:
<ul style="list-style-type: none"> • Memory problems • Inability to concentrate • Poor judgment • Pessimistic approach or thoughts • Anxious or racing thoughts • Constant worrying 	<ul style="list-style-type: none"> • Moodiness • Irritability or short temper • Agitation, inability to relax • Feeling overwhelmed • Sense of loneliness and isolation • Depression or general unhappiness
Physical symptoms of stress include:	Behavioral symptoms of stress include:
<ul style="list-style-type: none"> • Aches and pains • Diarrhea or constipation • Increased frequency of urination • Indigestion • Changes in blood glucose • Nausea, dizziness • Chest pain, rapid heartbeat • Loss of sex drive • Frequent colds • Irregular periods 	<ul style="list-style-type: none"> • Eating more or less • Sleeping too much or too little • Isolating oneself from others • Procrastinating or neglecting responsibilities • Using alcohol, cigarettes, or drugs to relax • Nervous habits (e.g., nail biting, pacing)

Sources: American Institute of Stress (AIS), 2015; NIOSH, 2015; Weinstein, 2015.

Alarm is the first stage of GAS. It is separated into two phases, a *shock* phase and an *antishock* phase.

- In the *shock phase*, the body experiences an initial insult such as hypovolemia, hypoosmolarity, hyponatremia, or hypoglycemia. The individual's resistance to the stressor drops temporarily below the homeostasis line, and some level of shock may be experienced by the person.
- *Antishock phase*: when the threat or stressor is recognized by the individual, the body responds with an alarm. For the duration of the antishock phase, the sympathetic nervous system is activated releasing catecholamines causing the classic fight-or-flight response. There is also a corresponding activation of the hypothalamic–pituitary–adrenal axis, promoting the release of cortisol, a stress hormone. Physiologically, the body's response is increased muscle tone, increased blood pressure, peripheral vasoconstriction, tachycardia, and increased blood glucose

Resistance is the second GAS stage and includes an increased secretion of glucocorticoids to deepen the systemic response. Glucocorticoids have lipolytic, catabolic, and anticatabolic effects resulting in increased glucose, fat, amino acids, and proteins in

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