Chapter 4  Psychological Stress

Section 1  The Concept and Theoretical Models of Stress

1. Origin and development of “stress”

“Stress” derives from the terminology of physics. In engineering and architecture, stress refers to the load applied to an object or structure, setting up a force, known as strain, which can result in damage once the elastic limit is exceeded.

Walter Cannon was the first person to use the term “stress” to refer to the physiological reaction caused by the perception of aversive or threatening situations. He also introduced the phrase "fight or flight" to refer to the response, which prepares an animal to cope with the threats posed by a predator.

Hans Seyle discovered that “stress is the human response to changes that occur as a part of daily living.”

Lazarus and Folkman(1984) believe unless we perceive a situation as threatening, we will not experience stress, which emphasized the role of perception and appraisal.

2. Theoretical models of stress

Psychologists have defined stress in different ways and some of the theoretical models are discussed below.

2.1 Stimulus model

This model regards stress as all kinds of stimuli, which can make the individual feel nervous. These stimuli include unemployment, catastrophe, poverty, traffic accident and so on. This model greatly fosters the research on stressor.

2.2 Response model

This model regards stress as a response and concentrates on the physical and psychological feeling of ‘being stressed’ or ‘completely stressed out’ with symptoms such as anxiety, poor concentration, insomnia, bodily tension and fatigue. Selye discover that body’s stress response consists of a predictable, non-specific, three-stage pattern of physiological responses: the alarm stage, the adaptive/resistance stage and the exhaustion stage. Not everyone experiences all three stages. The exhaustion stage is reached only when the person becomes stuck in the alarm stage or goes through the alarm and resistance stages too often. This model is called General Adaptation
Syndrome (GAS).

The **alarm stage** is the fight-or-flight response that prepares a person to meet a challenge or threat. The person experiences the changes characteristic of the first exposure to a stressor which include anxiety, panic, fear, racing thoughts, increased heart rate, increased blood pressure, headaches, muscle tension, gastrointestinal distress, etc.

The **adaptive/resistance stage** is the stage during which the body may return to its pre-excited state and recovers from the physiological strains of the alarm stage once the stressor is eliminated. If the stressor persists, the individual reaches a new level of adaptation as the internal organs mount a sustained resistance. The signs and symptoms which are characteristic of the alarm reaction virtually disappear. If the stressor is not eliminated, the person enters into a mode of energy conservation, which may be evidenced by social withdrawal, absenteeism, poor productivity, tardiness, etc.

The **exhaustion stage**, often termed “burn out” is a reaction to the constant high metabolic demands of an extended alarm stage. With its resources severely depleted, the body susceptible to illness, or in extreme cases, to death. Patients who experience long-term stress may succumb to heart attacks or severe infection due to their reduced immunity. For example, a person with a stressful job may experience long-term stress that might lead to high blood pressure and an eventual heart attack.

In conclusion, irrespective of the form the stress response takes once we have dealt with a stressful situation and the threat is over, our physiological state returns to normal. The fact that such physiological responses can have long-term deleterious effects on our health only matters if the stressor is severe or prolonged.

This model have provided the impetus for the introduction of stress management programmes that focus on controlling the psychophysiology of stress using relaxation and breathing exercises, yoga, meditation, and other forms of physical exercise.

**2.3 Psychological model**

Cox and Mackay (1976) suggested that stress is due to a dynamic transaction between the individual and the environment. Important to this model is the individual's cognitive assessment of the perceived demands made on him or her, and
that individual's perceived capability to deal with those demands. Stress is the result of the perceived demand outweighing the perceived capability. This model can be showed by the figure below.

There may be many psychological models of stress. Among them Cognitive-Phenomenological-Transactional (CPT) is very typical. CPT proposed by Lazarus (1976) included the suggestion that the individual's perception of capability interacted with cognitive appraisal of the threat. Again, a mismatch of the two resulted in stress. Lazarus also looked at the role of frustration and conflict within the individual, in exacerbating stress.

3. Scientific Definition of Stress

Stress is the process by which environmental events (stressors) challenge or threaten us, how these threats are interpreted, how they make us feel and how we respond and adjust to them.

Section 2 Stressor and Strain

1. Stressor

1.1 The Definition of stressor

Stressors are all kinds of factors including situation, individual or object, which can cause a state of stress in a person.

1.2 Types of stressors

1.2.1 External and internal stressor

External stressors include air pollution, noise, work, social intercourse, and
traffic jam. Internal stressors include headache, perfectism, repent and so on.
1.2.2 Physical, psychological, social and cultural stressor

Physical stressors are the stimuli that have impact on one’s body. Physical factors, biological factors and diseases are all the physical stressors. Psychological stressor mainly includes mental conflict and psychological frustration. War, social reform, and traffic jam are all social stressors. Cultural stressor are the cultural conflict and challenge one person faced when he or she move into a strange situation such as foreign country.
1.2.3 Negative and positive stressor

According to Chinese tradition, rain after long drought, meet old friends in an alien land, marriage, succeed in entering the university are all positive stressor and the death of relative, accident, acute illness are all negative stressor.
1.2.4 Controllable stressor and uncontrollable stressor

Controllable stressors are the stressors whose impact we can control. Both lack of friends and quarrel with classmates are this type of stressor. On the contrary, uncontrollable stressors are the stressors with which we have nothing to do. Earthquake and flood are this kind of stressor.
1.3 Life event

Life events are all kinds of events faced by the people in daily life. According to their impact on one’s daily life, they can be divided into catastrophes, significant life changes and Microstressors (Daily Hassles). War, earthquake, flood, fire, air accident are Catastrophes. Significant life changes include death of spouse, divorce, personal injury or illness, marriage, fired at work, marital reconciliation, retirement, and unemployment. As for the appraisal of life event, early researcher only pays more attention to important life events, but minor life changes are considered in Social Readjustment Rating Scale (SRRS) developed by Holmes and Rahe. SRRS rates the impact of various life events on the likelihood of contracting illness, which assumes that any life event that requires some kind of readjustment is stressful even if positive. Some critics point out that SRRS does not distinguish between desirable and undesirable events and does not consider meaning of the items for individuals.
2. strain

Strain is all kinds of physiological, psychological and behavioral changes because of the presence of stressors.

2.1 Classification of strain

2.1.1 Physiological reaction

Physiological reaction can be interpreted by GAS. Common physical signs and symptoms of stress include rapid heart rate, elevated blood pressure, nausea and/or vomiting, chest pain, difficulty breathing, fainting, increased perspiration, muscle twitching and so on.

Research has been carried out which suggests that stress can affect the ability of the immune system to protect the body against illness. Cohen et al. (1991) injected a large number of healthy volunteers with either a common cold virus or an innocuous salt solution. All participants were also given a stress index based on their reports of the number of stressful events experienced in the previous year.

Almost all the virus-injected participants showed signs of infection, but only about one-third actually developed colds. Moreover, the researchers found that even after controlling for factors such as age, cigarette and alcohol use, exercise and diet, the higher the stress index, the more likely were the participants to exhibit infection and cold symptoms (see following diagram).

![Graph showing the relationship between psychological stress index and participants with common colds.](image)

2.1.2 Psychological reaction

Psychological reaction can be divided into cognitive reaction and emotional
reaction.

Cognitive reactions include:
- Ø Narrowing of focus
- Ø Reduced concentration
- Ø Memory loss
- Ø Intrusive thoughts & flashbacks
- Ø Increased or decreased awareness of one’s surroundings
- Ø Difficulty making decisions
- Ø Poor abstract thinking
- Ø Difficulty identifying familiar objects or people
- Ø Loss of time, place or person orientation

Emotional reactions include:
- Ø Anxiety
- Ø Disbelief
- Ø Grief
- Ø Panic
- Ø Restlessness
- Ø Anger
- Ø Guilt
- Ø Feeling overwhelmed
- Ø Depression

2.1.3 Behavioral reaction

Behavioral reactions include:
- Ø Muscular tension
- Ø Tremors
- Ø Substance use (e.g., caffeine, nicotine or alcohol use)
- Ø Deterioration in performance effectiveness
- Ø Accident proneness
- Ø Nervous mannerisms (e.g., foot tapping, nail biting, teeth grinding, hair pulling, handwringing, etc.)
Ø Sleep disturbances
Ø Eating disturbances
Ø Persistent arousal
Ø Change in activity levels
Ø Change in usual style of communication
Ø Loss of interest in previously pleasurable activities
Ø Emotional outbursts
Ø Antisocial behavior

2.2 Measuring strain

2.2.1 Self-report methods

For example, The Perceived Stress Scale (Cohen 1983) asks people to rate 14 items on a five-point scale for frequency of feeling stress during the previous month. This method assumes that person’s perception of his or her own stress is accurate. But some people who physiologically would show little stress might say that they feel stressed.

2.2.2 Behavior observation

The person with high strain may have specific behavior such as facial expression, rate of speech, posture and nail biting, performance of task. So Behavior observation is an important method to measure strain.

2.2.3 Physiological and biochemical method

This method measure heart rate, blood pressure, respiratory rate, conductivity of skin, change of adrenal hormones and so on. It assume that strain is clearly indicated by the level of arousal. Although it is more objective, it is intrusive, unpleasant, time consuming and usually need complicated machines.

2.3 Strain and health

One the one hand, strain is positive for it is an adaptive response to challenging foreign situation. on the other hand, stress is negative especially under strong or chronic stressors. If you repeatedly turn on the stress-response, or if you cannot appropriately turn off the stress-response at the end of a stressful event, the stress-response can eventually become as damaging as some stressors themselves.
We differ as to the pattern and frequency of stressors to which we are exposed. These variations determine the magnitude and frequency with which we turn on the stress-response. The magnitude and frequency of the stress response regulate immune competence. Level of immune competence determines susceptibility to disease Stress-related diseases usually include digestive system, respiratory system, and cardiovascular system.

Section 3 The Mediating Factors of Stress

Of course whether some event is a source of stress will depend on our appraisal of the situation and possibly factors about our own personality. These are called mediating factors and include our Locus of Control, whether we demonstrate type A or type B behavior and whether we show the features of a Hardy Personality.

1. Cognitive appraisal

Lazarus introduces the concept of Primary Appraisal and Secondary Appraisal. The former decide if a situation is relevant or irrelevant, positive or threatening and the latter assess resources and decide how to cope with a threat or challenge. Take a exam for example. When we will take an exam there is an actual demand and we have an actual ability to cope. However, our perception of the demand and our perception of our ability to cope may differ from the actuality. If we see the demand as being high and perceive ourselves as being unable to cope with it we will experience stress and a corresponding physiological response.

2. Coping

2.1 Development and definition of “coping”

At first, coping was regarded as an adaptive process (Murphy, 1962). Joff and Bast regard coping as a behavior. Bilings think that coping is both a behavior and cognitive activity (1983). Later, Lazarus and Folkman regarded coping as cognitive or behavioral efforts to manage demands that are appraised as taxing or exceeding the resources of the person (1984). In addition coping is both a process and a trait. Coping is different from defense mechanism in that former is conscious process but latter is
unconscious process. Certainly, conscious coping may be transformed into unconscious defense mechanism after being used for a long time.

2.2 Classification of coping

2.2.1 Problem-Focused Coping

Problem-Focused Coping is a response aimed at reducing, modifying, or eliminating a source of stress (e.g., reduce work hours, quitting a stressful job, choosing a different career,) or expanding the resources for dealing with it (developing new skills, change study strategy). It is often used when the person believes that the demand is changeable.

2.2.2 Emotion-Focused Coping

Emotion-Focused Coping is behavioral (use of drugs, alcohol, social support, distraction) and cognitive (change the meaning of the stress) response aimed at reducing the emotional impact of the stressor. It is often used when the person feels he/she can’t change the stressor (e.g., bereavement); or doesn’t have resources to deal with the demand.

2.3 Assessment of coping

There are three kinds of methods assessing coping. They are psychophysiological and facial assessment, behavioral observation and self-report method. Questionnaire, critical incident analysis, daily diary recording and ecological momentary assessment are all self-report method.

2.4 Appraisal of coping

Traditionally, problem-focused coping is seen as more preferable than emotion-focus coping. But current popular viewpoint is that effectivity of coping mechanisms vary according to situation, for example, in situations where one is powerless to bring about any change such as in war or when facing death then emotion-focused coping strategies may be what is required.

2.5 How to deal with stress

Coping resource includes faith, optimism, self-efficacy and Social support. Problem-focused coping methods are given below:

Ø Setting goals and making plans
Ø Learn social skill
Ø Seek for information
Ø Surveillance of stressor
Ø Seeking help from others
Ø Talking about their experiences and trying to make sense of what happened
Ø Hiding until the danger has passed
Ø Gathering remaining belongings
Ø Beginning to repair the damage
Ø Time management

Emotion-focused coping methods are given below:
Ø Relaxing training
Ø Changing the view of the situation (this can be a slow and difficult process and also require time of professionals, but they offer a much more permanent solution and are in the control of the patient.
  Ø Using work or other distractions to avoid feelings
  Ø Positively divert one’s attention.
  Ø self-exposure or self-discharge
  Ø Escape and shrink
  Ø Following religious or cultural practices
  Ø Hostility and aggression toward others

3 Defense mechanism

3.1 Concept of defense Mechanism

Defense Mechanism was put forward by Freud. Anna Freud conducts systematic research on it. It is habitual and unconscious (in most cases) mental processes and behavior designed to reduce anxiety produced by stressful situation.

3.2 Characteristics of defense mechanism
  Ø Work by avoiding, denying, or distorting sources of threat or anxiety
  Ø Most operate unconsciously
  Ø Protect idealized self-image so we can live with ourselves
  Ø Some of them operate at the same time
Ø If used short term, can help us get through everyday situations
Ø If used long term, we may end up not living in reality

3.3 The types of defense mechanism

3.3.1 Psychotic defenses

Psychotic defenses include Denial, Distortion, and Delusional Projection. They are almost always pathological. For the user these three defenses permit someone to rearrange external reality (and therefore not have to cope with reality); for the beholder, the users of these mechanisms frequently appear crazy or insane. These are the "psychotic" defenses, common in overt psychosis, in dreams, and throughout childhood.

3.3.2 Immature defenses

Immature defenses include Fantasy, Projection, are seen frequently in adults and are common in adolescents. For the user these mechanism alter distress and anxiety caused by reality or other people; while for the beholder, people who use such defenses are seen as socially undesirable, immature, difficult and out of touch. They always lead to serious problems in a person's ability to cope with the world. These defenses are seen in severe depression, personality disorders, and adolescence.

3.3.3 Neurotic defenses

Neurotic defenses include Repression, Reaction Formation Displacement and are fairly common in adults. They can have short-term advantages in coping, but they often cause long-term problems in relationships, work, and enjoyment of life for people who primarily use them as their basic style of coping with the world.

3.3.4 Mature defenses

Mature defenses include sublimation Suppression, Humor and are common among most "healthy" adults and are considered the most "mature". Many of them have their origins in the "immature" level, but have been honed by the individual to optimize his/her success in life and relationships. For the user, these defenses help them to integrate many conflicting emotions and thoughts and still be effective; and for the beholder their use by someone is viewed as a virtue.

3.4 Main defense mechanisms
Ø Repression: The problem is pushed into the unconscious so that it does not have to be dealt with.

Ø Denial: When a situation is too painful to face, an individual may simply deny that it exists. The partner of a terminally ill patient may refuse to accept that there is anything wrong, despite having been given all the facts.

Ø Projection: The problem is projected to another person rather than being seen as one's own problem.

Ø Reaction formation: Other thoughts or feelings are substituted, which are diametrically opposed to the truth. For example, a man may be experiencing stress because he is strongly attracted to his best friend's wife. In order to deal with this, he develops a hatred for her; this feeling causes less stress than does the strong attraction.

Ø Rationalization: The individual looks for logical reasons for the stressful situation. In fact, these may not appear logical to anyone else.

Ø Projection: When one’s own feelings, shortcomings, or unacceptable traits and impulses are seen in others; exaggerating negative traits in others lowers anxiety.

Ø Rationalization: Justifying personal actions by giving “rational” but false reasons for them.

Ø Buckpassing: The action of transferring responsibility or blame to another person.

4. Social Support

4.1 The definition of social support

Social support is various types of aid provided by members of one’s social networks.

4.2 Category of social support

4.2.1 Tangible or instrumental social support; Lending a helpful hand, e.g. providing Information, new insights, advice.

4.2.2 Emotional support; Expression of empathy, understanding, caring, positive regard, encouragement, validating self-worth etc.

4.2.3 The degree of the social support being used.

4.3 Sources of Social Support
4.3.1 Formal systematic social support

4.3.2 Informal social support
   Ø Coworkers
   Ø Supervisors
   Ø Relative
   Ø Friends
   Ø classmates
   Ø Private counselors
   Ø Important “others”

4.4 Social support and health

   Persons receiving social support have lower stress responses and less stress-related disease (both short-term and long-term benefits). Social support seems to act as a protective buffer for people during times of high stress, reducing the negative impact of stressful events. Poor social support exacerbates the effects of stress.

4.5 The mechanism of social support affecting health

4.5.1 The main-effect model

   Social support has the potential protective function for one’s health no matter he or she is in stress.

4.5.2 The buffering model

   Social support acts as a protective buffer for people only during times of high stress.

5. Personality

5.1 The mechanism of personality affecting stress

5.1.1 Differential exposure hypothesis (direct effect)

   The people with different personalities are exposed to different amounts of stressors.

5.1.2 Differential reactivity hypothesis (buffering effect)

   Personality affects cognitive appraisal, social support and coping, all of which can affect strain.
5.2 Sense of control (locus of control)

The concept of locus of control was suggested by Rotter(1966) to identify how people saw the relationship between events and themselves. Each person has a locus of control that is either primarily external or primarily internal. We see our lives as being controlled by events outside the self if we have an external locus of control, or as being under the control of the self if we have an internal locus of control.

Johnson and Sarason(1978) found a higher incidence of depression and anxiety among those rated as high on external locus of control.

5.3 Hardy Personality

Kobasa looked for differences between those who experienced high levels of stress and became ill and those who didn't and claimed the difference was in the hardiness of their personality. People with a hardy personality show the following features:

- Sense of personal commitment to self and family
- Feel they have control over their lives
- See life as a series of challenges, not threats

5.4 Self-efficacy

Self-efficacy is the belief in one’s ability to carry out specific actions that produced desired outcomes. High Self-efficacy persons have increased persistence and effort on goals and less anxiety while working at difficult task. But learned helplessness is state of pessimism that results from explaining a negative event as due to stable, internal, and global factors.

5.5 Type A Personality or Cardiac Personalities

Type A Personality is a personality type with elevated risk of heart attack; characterized by time impatience, competitiveness, time pressure, urgency and chronic anger or hostility (the key element was hostility, particularly hostility which was repressed rather than openly expressed.) Type B Personality is all types other than Type A and unlikely to have a heart attack. Clearly, Type B personalities tend to be more relaxed than Type A people. There are some of both Types A and B in most people, but one type will be more dominant.
Section 4  Occupational Stress and Nurses’ Occupational stress

1. Occupational stress

It is increasingly recognized by employers that occupational stress is a worrying and expensive phenomenon. Some occupations, by definition, are more stressful than others: doctors, social workers and other caring professionals frequently suffer from high stress levels, with nurses top of the list (Wolfgang, 1988).

2. Occupational stress theory

2.1 Traditional theory

Stress at work may be due to a number of causes, some due to unpleasant physical environments (noisy or polluted) or incompatibility with other workers. Other causes may poor interpersonal relationships, perceived inadequate recognition, unemployment (even anticipated), role conflict and high responsibility for others.

2.2 Person-Environment fit theory

Job strain is often produced by having too much or too little to do, or by having too difficult or too easy a job. French et al. (1982) suggested it is often attributable to a poor person-environment fit. Job strain is not due to the environment or worker, but the misfit between them.

2.3 Job Demand-Control model

According to the Job Demand-Control model, job strain results from the interaction of two main dimensions of the work environment: psychological demands and control. The highest strain arises when demands are high and control is low. The least strain arises when demands are low and control is high. The job with high demand and high control is positive job. The job with low demand and low control is negative job.

3. Nurses’ occupational stress

3.1 Occupational stressor of nurses

Occupational stressor of nurse may include burdensome work, social status and salary, interpersonal conflict, work-family conflict and others such as lack of opportunity of promotion.
3.2 The strain of nurses

The strain of nurse is physiological, psychological and behavioral response. In addition, nurses are prone to get burnout. Originally burnout has been defined as a syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment, that occurs in occupations in which a contact with other people constitutes a major part of the task and can be a source of stress (Maslach & Jackson 1981). Burnout has become the occupational risk of helping occupation such as teachers, nurses, therapists, lawyers and administrator. Recently it is has been observed that burnout can evolve in any occupations and need not to be restricted to occupational issues related to service provision (Taris et al. 1999). The factors affecting the strain of nurse include stressor, personality, coping style, social support.