



Occupational Stress and Human Error

Introduction

The workplace should be a healthy area where both employers and employees can carry out their work duties and responsibilities efficiently and effectively. Furthermore, such a condition could increase productivity and generate profit for the organization.

However, the workplace can also be a source for the worker. This work related stress will affect the worker individually and the organization. Even though stress is part of life, occupational stress is more common in the workplace as workers need to deal with so many matters in carrying out their duties.

Occupational or work-related stress may be considered as a type of occupational disease and should be differentiated from normal stress. Work-related stress is a condition where the individual worker may experience a high level of anxiety, mental fatigue, and other related symptoms and sign. Such symptoms may affect the worker's health, social life and personal relationship. Occupational stress at the workplace can also have an effect on the productivity of the workers and consequently affect the organization's profits as well as its reputation.

Occupational Stress

Generally, people need some pressure and challenge at work to keep them motivated. But nowadays, the work culture has changed, focusing more on maximum productivity, minimum costs, increasing customer satisfaction and improving overall performance. Hence, this work situation burdens workers and puts pressure on them when the demands are beyond their knowledge, skills and capabilities if this situation continues over a long period, it will lead to strain or distress. Distress not only leads to injury, it could also cause chronic medical problems and affect business productivity.



Definitions and Legislation of Occupational Stress

National Institute of Occupational Safety and Health (NIOSH)

According to NIOSH (1999), job stress is “the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker”. The Occupational Safety and Health Act 1994, Part I, Section 4 is the provision of law that requires the workplace environment to be adapted to the physiological and psychological needs of workers. It means that if the workplace environment is not suitable for the mental health of workers, they will suffer discomfort and stress.

Stress Effects on Job Performance

Stress cause an imbalance in one’s life because it leads to depression and thus damages health, attitude and job performance. The human function curve (see Table 1) shows the relationship between stress (good and bad) and performance (physically and mentally).

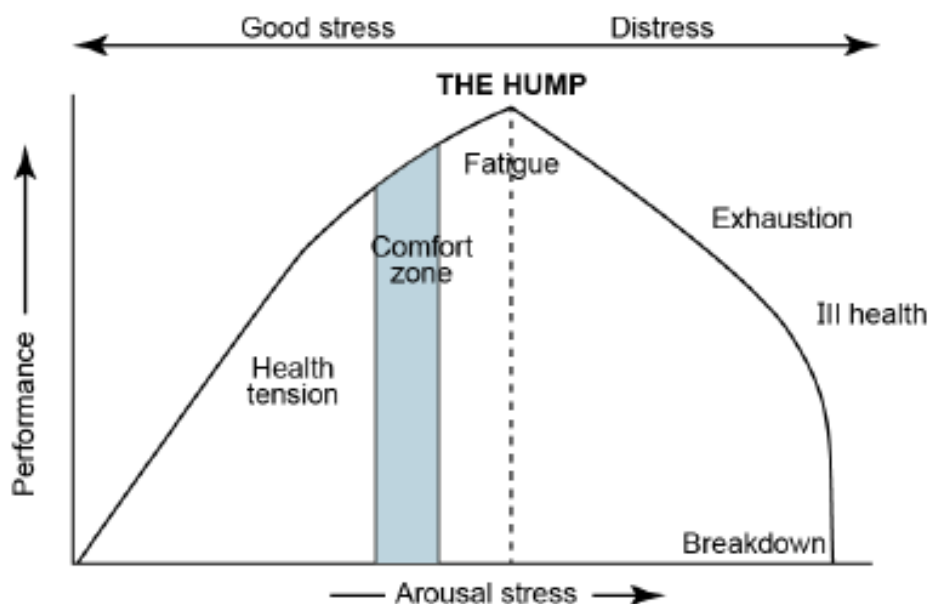
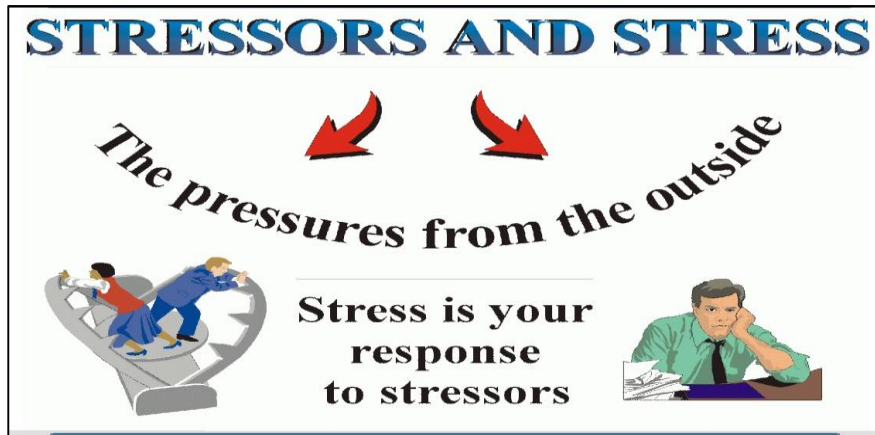


Table 1: The human function curve adapted from Nixon (1979)

Source: Rimo,Ravi & Venkateswaran (2015)

The curve in Figure5 shows, that as the level of stress increases, the job performance goes up to the comfort zone or eustress level. At the comfort zone area, the worker is able to concentrate and focus on the task that has to do and perform at his best.

When stress is perceived as uncontrollable or unmanageable, from the fatigue point the person begins to experience distress with a gradual to drastic decrease in performance level. The ultimate end of overwhelming stress, called burnout, can be exhaustion, ill health or breakdown.



Stressors

The workplace is a primary source of occupational stress. Workplace factors that cause both demands and pressure on humans are known as “stressors”. Occupational stressors are individual into three group:

(a) Individual stressors

Individual stressor refers to any event, experience or environment stimulus that cause stress to an individual. These events or experiences are perceived as threats or challenges to the individual and can be either physical or psychological. Table 2 describe some common individual stressors.

Stressor	Description
Career changes	When an employee has to relocate geographically because of a transfer or promotion, it disrupts the routine of his daily life, causing concern and stress.
Role conflict or ambiguity	The person is unclear about his actual tasks, responsibilities and expectations. It takes place when contradictory demands are placed upon an employee simultaneously.
Below expectations	The job is not as per the expectations of the person.
Career concerns	Unfulfilled career expectations and no opportunities for self-growth.
Work overload	Those individuals work different shifts which are associated with problems of shift timing, personal and family life.
Job dissatisfaction	The person is unable to achieve his goal.
Personality	The extent of stress is also determined by the personality of a person. A person with Type A personality is highly susceptible to stressors, whereas a person with Type B personality is less stress-prone. Traits of Type A personality include: <ul style="list-style-type: none"> • Competitive; • Aggressive and hostile; • Fast talking; • Impatient and dislikes waiting behaviour; • Easily gets irritated by minor errors; and • Likes to do several tasks at one time.

Table 2: Description of Common Individual Stressors

(b) Group Stressors

Another source of stress in organisations is poor interpersonal relationships or conflict. This conflict can be among the members of the group or between the superiors and subordinates. Group have a lot influence on the employees’ behaviour, performance and job satisfaction. On the other hand, the group can also be a potential source of stress. Table 3 lists some of the main sources of group stressors.

Stressor	Description
Managerial	Managers create stress for employees through inconsistent behaviour, lack of necessary support, inadequate advice or training, by forcing high productivity, lack of concern for employees’ job and welfare.
Group unity	No unity among the members of the work group. In addition, this is associated with mistrust, jealousy, quarrels etc.
Superior consultation	Lack of participation and consultation from the superiors before making a decision. The employees feel neglected.
Interpersonal or intergroup conflict	Differences in perceptions, attitude, values and beliefs between individuals or groups.
Lack of social support	Lack of friendship and support among teammates decrease coping ability.
Workplace violence or sexual harassment	People who experience violence or sexual harassment suffer severe distress and poor job performance after the event.

Table 3: Description of Group Stressors

(c) Organisational Stressors

In organisations, there is no shortage of factors, which can cause stress. Almost every aspect of work can be a stressor for someone. Although there are many factors in the work environment that have some influence on the extent of stress that people experience at the job, the factors listed in Table 4 have been shown to be particularly strong in inducing stress.

Stressor	Description
Organisational factors	Some of the common organisational factors are: <ul style="list-style-type: none"> • High pressure environment; • Excessive rules and lack of participation from the superior; • Lack of leadership; and • Major changes like transfer or adaptation of new technology.
Work overload	Excessive workload places tremendous pressure on a person.
Work underload	Very little work of a routine and simple nature would lead to monotony and boredom.
Working conditions	Workplace is not adapted to human mental and physiological needs.

Table 4: Description of Organisational Stressors

Stress Management

The goal of managing occupational stress is to increase or sustain the performance level without jeopardising the worker’s health. Table 5 shows a graph of the stress performance curve explaining how stress affects performance in theoretical terms. As shown in the graph, performance levels increase when stress management is effective. According to Bali (2015), stressors such as pressure and demands can facilitate better stress response and thus, higher levels of performance.

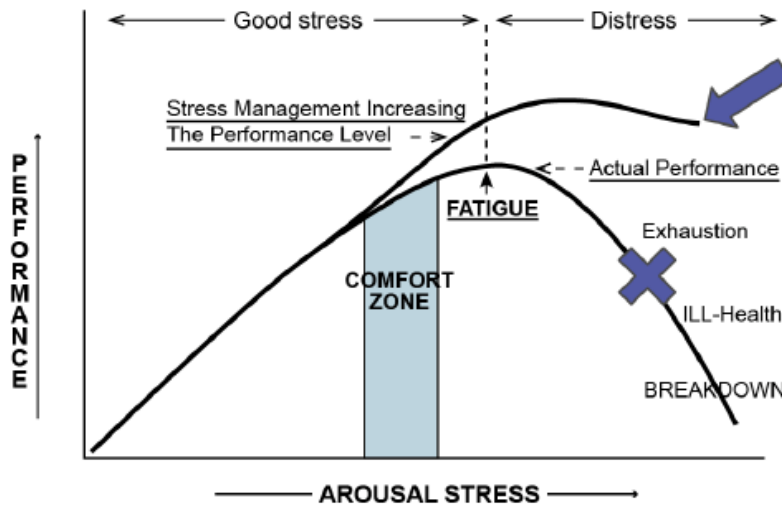


Table 5: The human stress response curve adapted from Nixon (1979)
Source: Bali (2015)

From the occupational health perspective, the management approach is based on the concept of health prevention. There are three levels of prevention:

- a) **Primary Prevention** – This preventive and proactive measure requires action on the part of the organisation to modify or eliminate the existing stressors in the workplace. Design method for primary prevention is risk management. The following are some of the primary preventive measures that an organisation can take:
 - i) **Work Demands**
 People’s skills are matched to the work demands. The organisation provides employees with adequate and achievable demands
 - ii) **Control or Coping capability**
 Organisation assists improving employees’ competency to do their work.
 - iii) **Support**
 Organisation provides policies, procedures and resources to adequately support employees. Furthermore, support the employees in the form of competent colleagues, coaches and mentors, and professional networks.
 - iv) **Relationship**
 Organisation promotes positive behaviours and share information at work.

v) **Role and Responsibility**

The organisation provides information to ensure the employees understand their role and responsibilities.

vi) **Management Change**

Employees are fully informed with adequate consultation of the plans and progress at each stage of changes. The purpose is to enable them to understand the reasons for proposed changes.

b) **Secondary prevention-** This measure is confined to the individual workers. The purpose is to enhance the workers’ ability to manage stressful conditions by increasing their awareness, knowledge, skills and coping resources. The following are some of the main secondary prevention methods:

i) **Prioritising and Organising**

When job and workplace stress prevail, it is difficult to ignore it. The recommended method is by prioritising and organising the responsibilities. These include time and task management:

- Time management: Creates a balanced schedule by analysing work schedule, responsibilities, and daily tasks.
- Task management tips for reducing job stress: Prioritises tasks and delegate responsibility.

ii) **Improving Emotional Intelligence**

Emotional intelligence is the ability to manage and use personal emotions in positive and constructive ways. The advantage is you can retain a large measure of self-control and self-confidence even if you’re in a job where the environment has grown increasingly stressful.

iii) **Work-life Balance**

When stress on the job is interfering with your ability to work, manage your personal life. Pay attention to your physical and emotional health. Try to find a balance between work and healthy living. Life balance can promoted harmony and happiness. Examples of healthy living are listed in Table 7.

Physical	Mental	Social	Spiritual
<ul style="list-style-type: none"> • Relaxation • Exercise or games • Healthy diet • Adequate sleep • Avoid drugs, alcohol and smoking 	<ul style="list-style-type: none"> • Philanthropy • Volunteerism • Samaritanism 	<ul style="list-style-type: none"> • Family • Friends • Entertainment 	<ul style="list-style-type: none"> • Prayer • Meditation • Yoga • Tai chi • Chi gong • Other martial arts

Table 6: Example of Healthy Living

- c) Tertiary prevention – This measure refers to reactive strategies for individual suffering from illness because of stress. The purpose is to treat the medical illnesses, provide compensation and rehabilitate the workers. Examples of methods of tertiary intervention are return to work programme (RTW), employee assistant programme (EPA), occupational therapy and medical stress treatment.

HUMAN ERROR

Human error is commonly defined as a failure of a planned action to achieve a desired outcome (Commonwealth of Australia,2017). It is unintentional action or decision and it is related to planning or execution of an activity or a process.

According to Sanders and McCormick (1993), human error is defined as “an inappropriate or undesirable human decision or behaviour that reduces or has the potential for reducing effectiveness, safety or system performance.

Classification of Human Errors

According to Health and Safety Executive (2015), human error is a type of human failure. Human error can be classified into two main categories as shown in Figure 1.

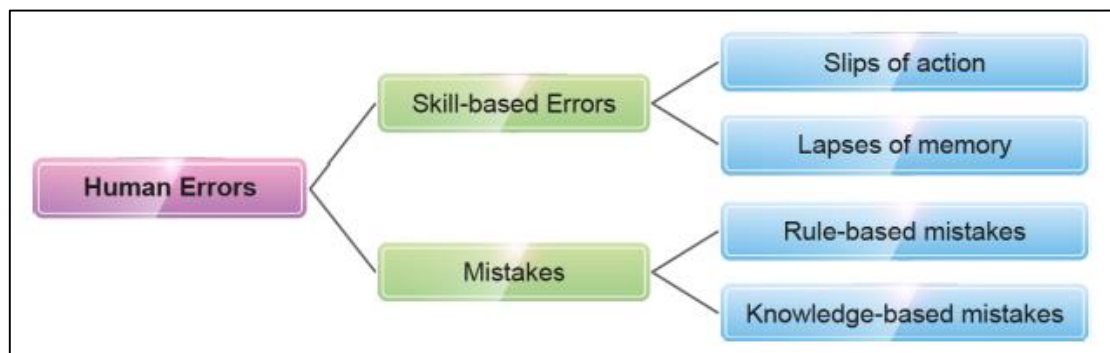


Figure 1: Classification of Human Errors
Source: HSE (2015)

Now, let us know more about the categories of human errors:

a) Skill-based Errors

This error is related to routine tasks without much focus or through. It has two subtypes:

I. Slips of Action

The action taken is not as intended. The following are examples of slips of action:

- Leaving out a step or steps in a work process;
- Performing an action too soon or too late; and
- Performing the action in the wrong direction.

II. Lapses of Memory

This error occurs because the worker forgets or lose the steps in the process, for instance, due to distractions and interruptions.

b) Mistake

Incorrect action is taken under the worker forgets or loses the steps in the process, for instance, due to distractions and interruptions.

I. Rule-based Mistakes

Rule-based mistakes refer to situations where the use of or disregard for a particular rule or set of rules results in an undesired outcome. Some rules that are appropriate for use in one situation will be inappropriate in another.

Incorrect application of a good rule occurs when a rule has worked well on previous occasions, so it is applied to a similar situation with the incorrect expectation that it will work. This kind of mistake relies on past or familiar rules or procedures and will use them in a new work process.

II. Knowledge-based Mistakes

Knowledge-based mistakes result from “trial and error”. In these case, insufficient Knowledge about how to perform a task results in the development of a solution that is incorrectly expected to work.

For example, this type of mistake occurs when one use past knowledge or arrangement to determine planning or problem-solving in a new situation, and comes to the incorrect conclusion or action.

Causes of Human Errors

There are two main factors causing errors in the workplace:

a) Organisational Factors

Examples of organisational factors are:

- i. Inadequate or inappropriate work layout;
- ii. Poor physical environment, such as noise, heat humidity, poor lighting;
- iii. Poor ergonomics designs; and
- iv. Poor supervision

b) Individual Factors

These are confined to high susceptibility, for example:

- i. Low competency, such as inadequate skills, knowledge (training) and attitude;
- ii. Low motivation;
- iii. Poor emotional state;
- iv. High stress levels; and
- v. Poor physical condition.

