

Psychology, Health & Medicine:

Stress, Immunity & Health

Session overview

- Stress, appraisal & coping
- Stress & Health
 - Infection, inflammation and immunity
 - Stress and wound-healing
 - Stress and GI problems
- Coping interventions for health

We can use psychological theories of stress, appraisal & coping:

- **to understand how people cope with various health situations**
- **to understand individual differences in disease progression or recovery from illness**
- **to understand patient decision-making**
- **to identify those in need of additional support**
- **To develop appropriate coping interventions**

What is stress?

- A natural reaction to excessive pressure
- When perceived demands exceed the individual's ability to cope
- It is not a disease but if excessive/prolonged can lead to mental and physical ill health
- There is no such thing as positive stress (only positive pressure)
- stress is always negative
- Stress-related disorders a DSM classification

Stress as a stimulus

- Pressure caused by an outside stimulus
- Engineering model (physical)
 - Takes its theory from physics
 - External forces (load) exert pressure and produce strain
 - Strain = stress
 - We can easily measure the stress a person is subjected to (Hinkle, 1973)
- E.g focus on daily hassles/stressful life events
- Does not take account for individual differences



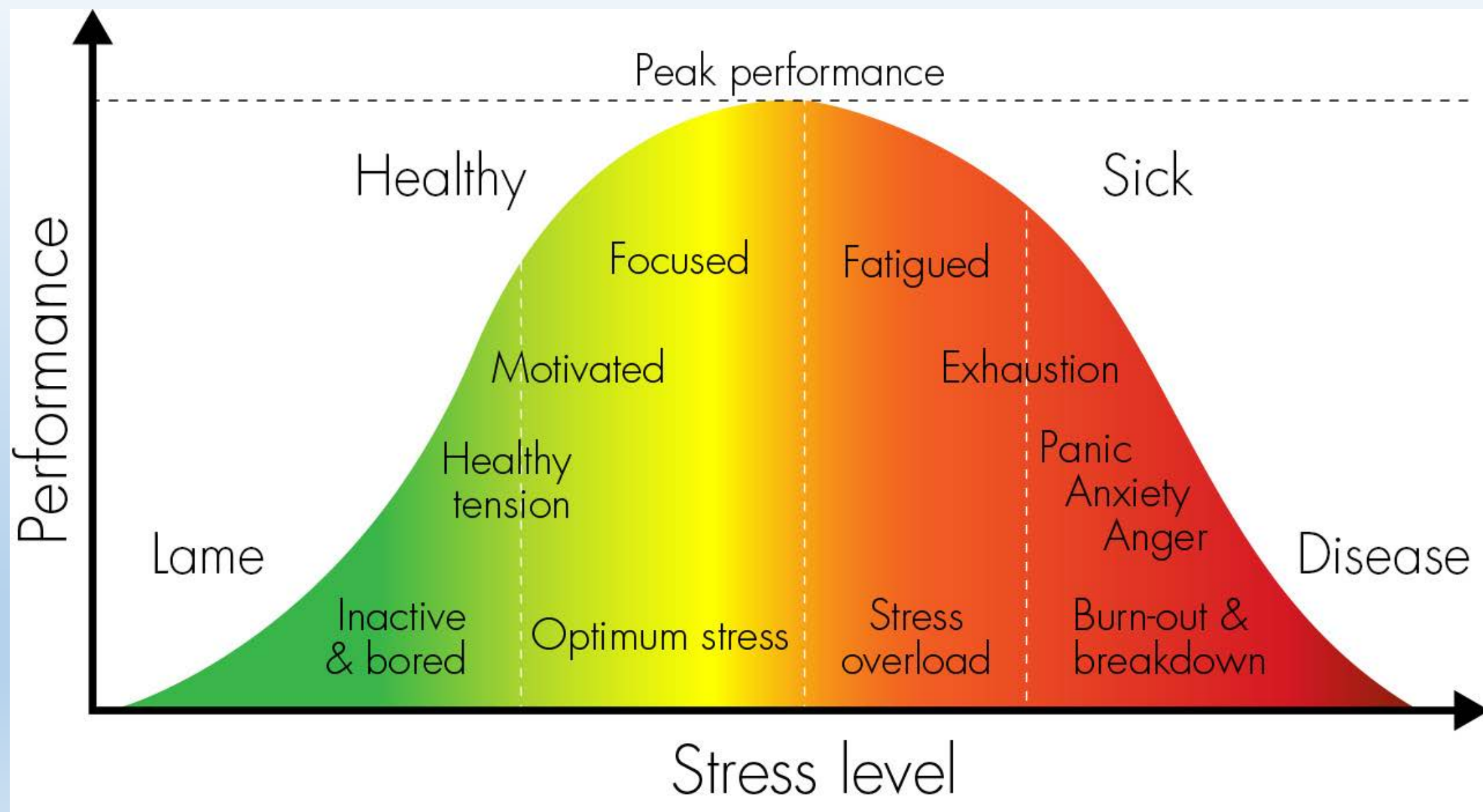
Fight or Flight Response



Selye's 1946 General Adaptation Syndrome

- Stress response involves 3 stages:
 - **Alarm reaction** – lowered resistance, defence mechanisms activated (E.g. adrenalin)
 - **Resistance** – return to equilibrium unless stress agent continues
 - **Exhaustion** – failure of defence/adaptive mechanisms

<https://www.youtube.com/watch?v=XADIs-A1iiM>



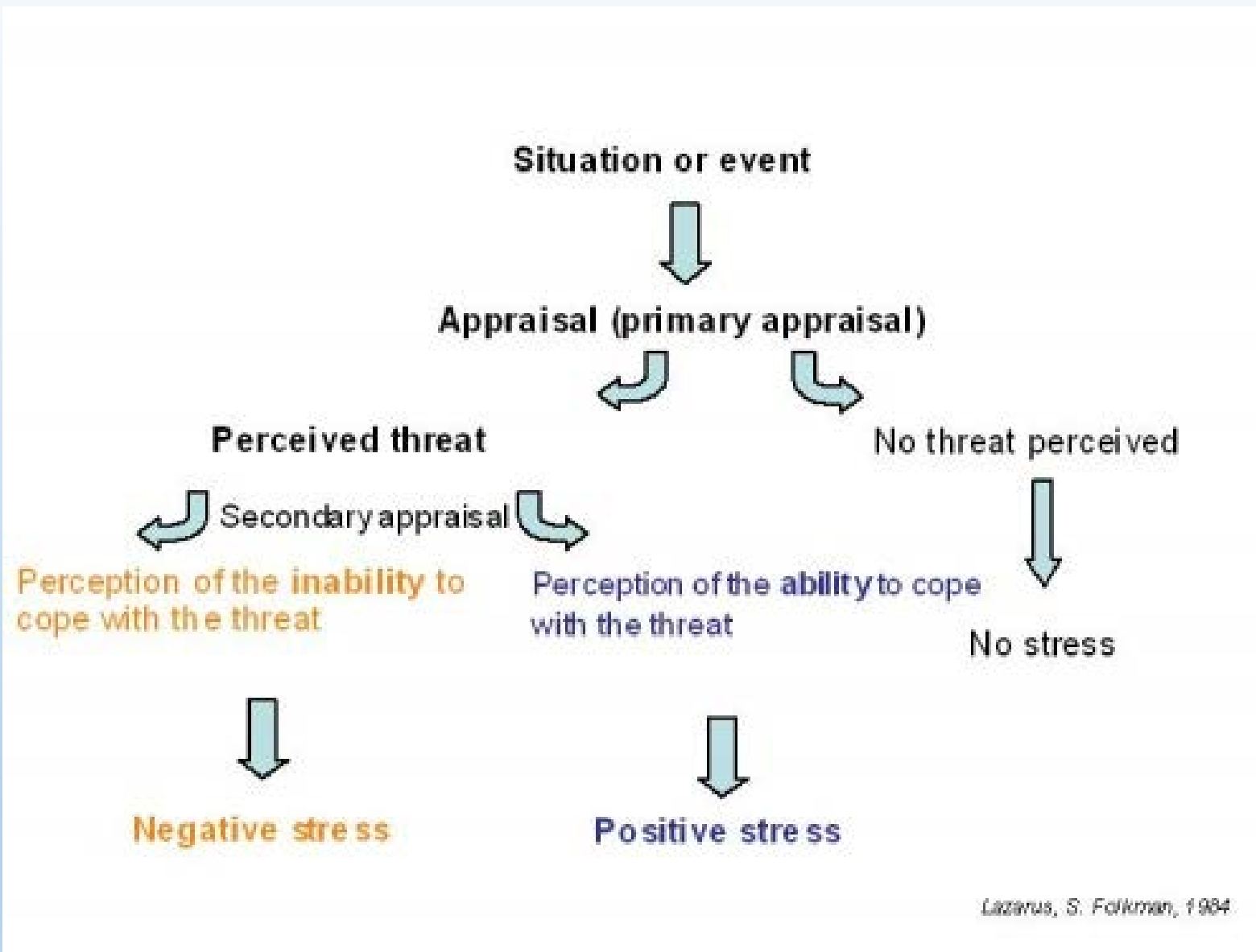
Transactional/interactional models of stress and coping

- **Psychological** emphasis in definition – Stress exists when person **feels** they cannot cope with demands of environment
- Interaction of person and environment
- Importance of ***cognitive appraisals***
 - Lazarus & Folkman's transactional theory of stress and coping (1984)
- Explains why some seem to flourish under certain levels of stress and others don't

The transactional model of stress and coping (Lazarus & Folkman, 1984)

- According to the transactional model, the stress and coping process involves two main elements:
 - an **evaluation** of a situation that produces negative emotions,
 - coping efforts which attempt to reduce these negative emotions.
- This process of evaluation is known as **Cognitive Appraisal**
 - an individual's evaluation of the meaning of a particular encounter for well-being.

- The experience of stress or distress is the result of a **transaction** between the individual and the situation
- It is not the objective situation itself which causes stress, but the individual's **evaluation of the threatening nature** of the situation.
- Therefore - different people may evaluate a situation differently, resulting in different emotional responses and coping strategies.
- **Cognitive appraisal** refers to an individual's evaluation of the meaning of a particular encounter for well-being (Frijda et al., 1989; Smith & Lazarus, 1993; Rosenman et al., 1996).



What is coping?

- a response to negative events or emotions, and involves cognitive and/or behavioural efforts to manage or adapt to the stressful situation
- (e.g. Lazarus & Folkman, 1984; Folkman & Lazarus, 1988a).

- Coping is initiated by an individual's **primary appraisal** that important goals have been harmed or threatened
- the particular coping strategies employed will depend upon an individual's **secondary appraisal** of the coping strategies available and how effective these strategies are likely to be in reducing distress.

Dimensions of Coping

- Problem-focused coping
 - also called task-oriented or active coping
- Emotion-focused coping
- Also avoidant coping (really a form of emotion-focused coping....)

Problem-focused Coping

- involves trying to change the situation in order to eliminate the cause of the stress.
- Two main types of problem-focused coping strategies:
 - confrontive/interpersonal
 - planful problem-solving.

Emotion-focused coping

- strategies aimed at reducing the level of distress experienced, rather than trying to change the actual cause of the stress.
- includes techniques such as
 - denial,
 - positive reframing,
 - emotional expression
 - seeking social support (e.g. Carver et al., 1989).

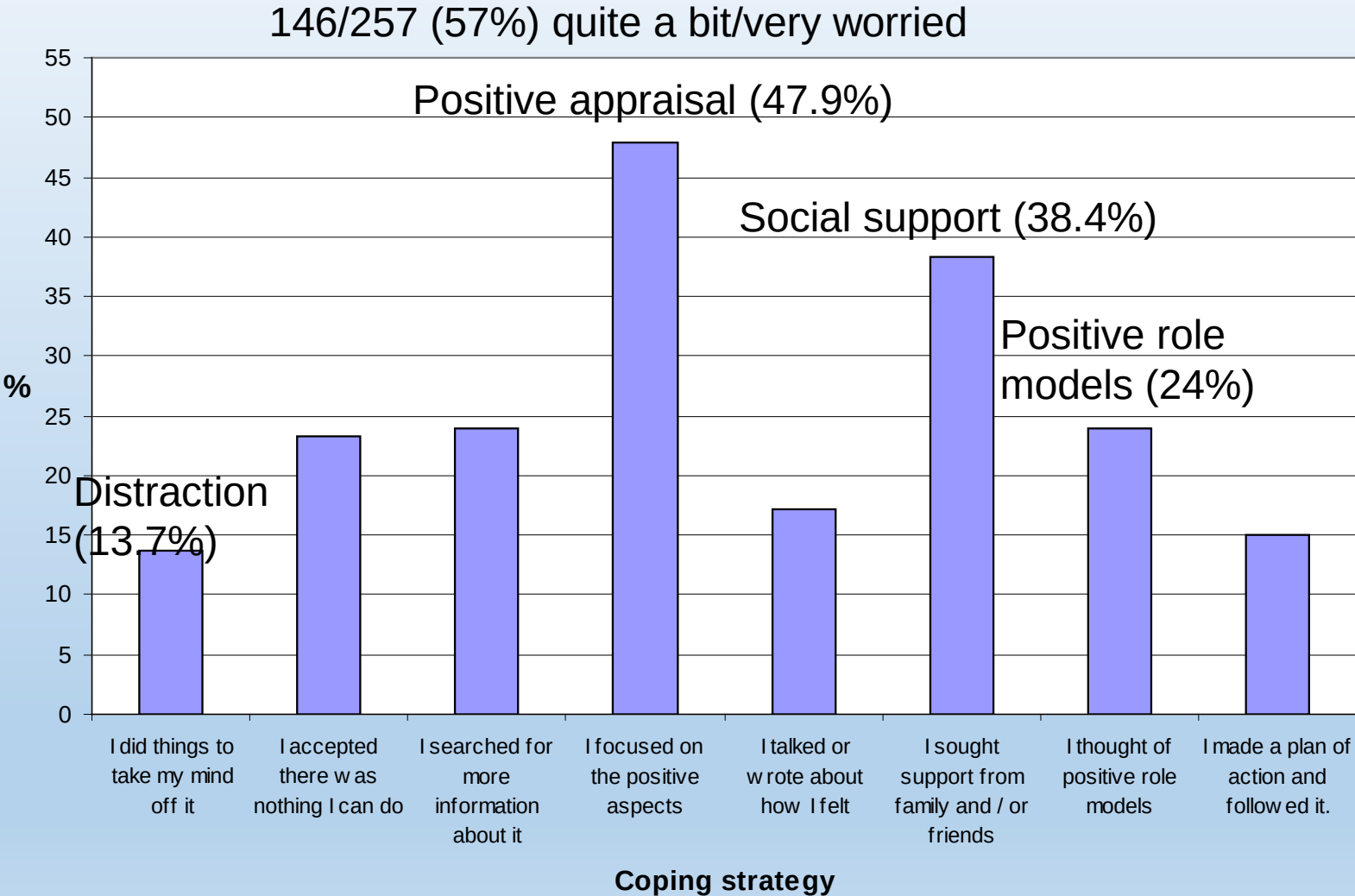
Avoidance-oriented coping

- involves diverting attention away from the source of stress.
 - person-oriented responses such as seeking social diversions
 - task-oriented responses such as engaging in distracting activities.
- Concern over how adaptive/effective avoidant strategies are

Coping with genetic assessment

- Patients have different worries at different times in the assessment process
- Therefore have to cope with these worries in different ways!

Worries about being at risk: how patients would cope if found to be at increased risk of cancer



Phelps, C; Bennett P; Jones H; Hood K; Brain K & Murray A (2010). The development of a cancer-genetic specific measure of coping: The GRACE. *Psycho-Oncology*, 19, 847-854

Avoidant coping: can putting your head in the sand ever be a good thing?



- What are the implications of avoiding thinking about the potential outcomes of a medical test?



- Clutton et al. (1999)
 - investigated the role of coping strategies amongst women recalled for breast screening after a “false positive” result.
 - Women who engaged in avoidant strategies whilst awaiting recall screening reported higher levels of psychological well-being after the recall than women who engaged in problem-focused coping.
 - *during relatively short-term periods of waiting which cannot be changed or controlled, avoidant strategies may be more adaptive than problem-focused coping strategies.*

Manne et al. (2000)

- amongst individuals undergoing treatment for cancer, avoidance did not predict distress amongst those with early stage breast cancer, but did predict distress amongst those with late stage breast cancer.
- *in the longer term, avoidant strategies may not be adaptive because they prevent an individual from processing important issues and emotions.*

- Forsythe & Compass (1987) - psychological morbidity was high when individuals used problem-focused coping in an uncontrollable stressful situation.
- Vitaliano et al. (1990) emotion-focused coping was positively related to depressed mood when a stressful situation was appraised as changeable, whilst problem-focused coping was negatively related to depressed mood.
- *If an individual continues to use a coping strategy inappropriate to a specific situation, it is likely to have an adverse effect on the individual's well-being in the long-term (Folkman & Lazarus, 1988).*

Is a patient an
information seeker...



.....or an information-
avoider?

N:B Monitoring V Blunting (Miller)

- Information-seeking preferences
- Monitors likely to experience more distress in situations of uncertainty/where no information is available
- Blunters likely to experience more distress when overloaded with information

Coping Effectiveness

- An individual is likely to alternate between problem-focused coping and emotion-focused coping as a stressful encounter unfolds (Folkman & Lazarus, 1988).
- Moreover, rather than one type of coping strategy being superior across every situation, the effectiveness of a given strategy depends upon the nature and duration of the specific stressful situation (Forsythe & Compas, 1987).

The “goodness of fit hypothesis”

- the “goodness of fit” between a chosen coping strategy and the changeability of the situation is an important factor in the degree of psychological distress experienced during a stressful encounter

Coping Effectiveness Training & The “goodness of fit hypothesis”

- Coping a constantly changing process and the effectiveness of different types of coping varies across different situations.
- **Coping Effectiveness Training (Chesney et al. 1994)**
 - A “toolkit” for effective coping
 - have to match coping strategies to the type of situation
 - Changeable V unchangeable
 - Short-term V Long-term?



Control.....

- whether or not a particular type of coping strategy is effective will depend upon the degree to which a desired outcome is within an individual's control
 - Problem-focused coping most effective in situations that can be changed
 - emotion-focused coping more appropriate when an individual is in a situation where it is not possible to change or eliminate the source of the stress itself

The role of positive emotions in coping

- positive emotions play an adaptational role in helping people cope with stressful situations
 - Sustain coping efforts
 - positive reappraisal
 - problem-focused coping
 - Benefit finding

(Antoni et al., 1991; Folkman, 1997; Fredrickson & Levenson, 1998; Folkman & Moskowitz, 2000).

Excellent video from Professor Susan Folkman

- Coping with stress; research on caregivers

<https://www.youtube.com/watch?v=ggi6dlwneuM>

Why is managing stress in health important?

e.g. Coping with genetic assessment/ testing

- Aprox 30% of individuals experience high levels of distress (Hopwood et al., 1998; Cull et al., 1999; Fry et al., 2003).
- Vulnerable sub-groups:
 - younger individuals (e.g. Schwartz et al., 1995),
 - lower level of education (e.g. Vernon et al., 1997),
 - pre-existing high levels of distress (e.g. Broadstock et al., 2000a)
 - those with a tendency to seek out relevant, potentially threatening, information (Schwartz et al., 1995; Nordin et al., 2002).

High levels of psychological distress:-

- affect comprehension of risk information (Kent et al., 2000; Meiser et al., 2001a)
- reduce adherence to screening and self examination (e.g. Lerman et al., 1991; Stefanek & Wilcox, 1991; Diefenbach et al., 1999)
- associated with a greater intention to undergo risk reducing prophylactic surgery (Meiser et al., 1999; van Dijk et al., 2003).
- may decline or drop out of the risk assessment or genetic testing process (Kent et al., 2000; Fry et al., 2003) and thus lose access to specialist support and advice.

Stress and health

Stress and wound healing

Koschwanez et al. (2015)

- Higher psychological stress associated with slower dermal wound healing
- The number and activation of immune cells in the skin prior to wounding are affected by stress and can impact healing

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Stress and health

Stress and Cancer

Activation of chronic or acute stress physiology during UV exposure can respectively suppress or enhance anti-tumour immunity and correspondingly increase or decrease susceptibility to skin cancer.

These studies add to a growing understanding of how stress affects tumour development, and may provide a means for optimizing a patient's response to cancer treatment

Stress and health

Stress and Cancer

Amiel et al. (2016) The importance of stress management amongst postresection breast cancer patients

Stress among postsurgical breast cancer (PS-BCa) patients can affect biological processes that regulate the endocrine and immune systems and these influences can have long-term effects on disease outcomes