WJEC Psychology A-level

Stress

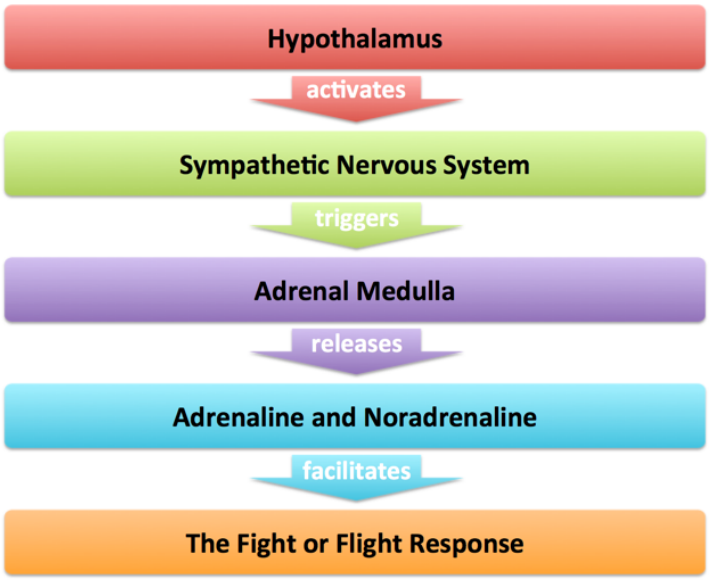
Notes

Part 1 — The Physiology of Stress:

- Selye (1936) proposed the idea of the General Adaptation Syndrome (GAS), which suggests that stress helps us to adapt to new situations and we undergo three stages in doing so. The 'alarm reaction' describes the immediate physiological response we experience upon perceiving a stressor (e.g. increased activity of the sympathetic branch of the autonomic nervous system, as dictated by the hypothalamus) whilst the second idea of 'resistance' suggests that in the case of short-term stress, the body tries to resist the stressor through rapidly consuming its energy resources. Therefore, as the stressor becomes chronic, increased activity is triggered in the parasympathetic branch in order to reduce the physiological responses increased by the sympathetic branch. The final stage is exhaustion, where the original physiological symptoms return and the body's energy resources become drained, resulting in immunosuppression and 'diseases of adaptation' e.g. CVD and hypertension.

\+ There is evidence from animal studies supporting the 3 stages of stress responses. Through exposing rats to various stressors (e.g. forced extreme levels of exercise), Seyle (1936) found that within 6 to 48 hours, all rats responded in the same way to both an initial stressor (through the alarm reaction) and to a prolonged, chronic stressor (through resistance and exhaustion). Although there are physiological differences between rats and humans in terms of the complexity of nervous systems and the concentration of (cortisol) hormones released, this nonetheless provides significant evidence for the stages of stress.

- In terms of physiological responses to stress, there are two types: acute and chronic.
- Acute: The body perceives an immediate stressor, and this information is sent along sensory neurons to the hypothalamus. The hypothalamus then triggers increased activity in the sympathetic branch of the autonomic nervous system, which produces the physiological arousal needed to maintain the fight or flight response/ the sympathomedullary pathway. Examples include the release of adrenaline and noradrenaline from the adrenal medulla, causing vasoconstriction, pupil dilation and rectum contraction. Once the stressor is no longer an immediate threat, through the 'rest and digest' response, increased activity in the parasympathetic branch decreases the activity which had been increased by the sympathetic branch.



- Chronic: Activation of the hypothalamic-pituitary-adrenal system (HPA) produces longer-lasting effects compared to hypothalamus action. The release of CRF (corticotropin releasing factor) results in increased activity of the pituitary gland which releases ACTH. Cortisol (the 'stress' hormone) is then released by the adrenal cortex depending on ACTH and CRF levels. This also creates the same physiological arousal needed to maintain the fight or flight response for a longer time, compared to the acute response.
- Cortisol levels are then reduced, through reducing output of ACTH and CRF from the HPA system, through a negative feedback system. This prevents any unnecessary physiological damage!

— Early research into the fight or flight response may be guilty of a beta bias i.e. minimising the differences between males and females. This is because early research often used male lab mice, due to lower levels of hormone fluctuation and so the effects of HPA activation and cortisol levels could be more accurately measured. However, this response was then assumed to be the same in females, and generalised as such. More modern researchers have provided further support for this idea, such as Taylor et al (2006), who have supported the 'tend and befriend' approach as an

alternative to the fight or flight response in females, which reduces the risk of females abandoning their young. Nonetheless, there is a beta bias in psychological stress research.

+ There are real-life applications to an increased understanding of the stress response in humans, such as improved treatments for Addison's Disease which is characterised by an inability of the adrenal glands to secrete cortisol. Therefore, patients are unable to deal with highly stressful situations due to an inability to sustain the fight or flight response, often resulting in an 'Addisonian crisis'. This means that an improved understanding of the role of cortisol in negative feedback systems and the SAM may result in highly effective cortisol replacement treatments.

Part 2 — The Role of Stress in Illness:

- The continuous release of cortisol from the HPA system results in immunosuppression directly, or indirectly through affecting other life factors which increase the risk of falling ill e.g. insomnia, disrupting eating patterns, increased tendencies towards drug abuse etc.
- An example of acute stress would be examinations. For example, Kiecolt-Glaser et al (1984) found a reduction in the number of natural killer cells and T killer cells in the blood samples of medical students on the first day of their exams, compared to one month before. This provides strong support for the idea that an extended period of HPA activity may result in immunosuppression, due to the role of T killer cells in identifying and engulfing foreign pathogens. Secondly, Kiecolt-Glaser et al (1991) also found that carers of patients with Alzheimer's Disease reported a higher susceptibility towards EBV and 26% higher rates of depression compared to a non-caregiver matched control group. This also strongly supports the role acute stressors in increasing the risk of mental health disorders (a stressful experience in itself) and increasing stress levels as a whole.
- An example of chronic stress would be highly arousing situations, such as watching your favourite football team compete in the World Championships, as investigated by Wilbert-Lampen et al (2008), who reported a 2.66 increase in the likelihood of suffering from a myocardial infarction during the 1996 World Cup. Chronic stress may also be considered as a more serious/influential risk factor in the development of a myocardial infarction than obesity, as suggested by Yusuf et al (2004) on the basis of data provided from 15000 MI patients from an INTERHEART study.

— Acute stressors appear to have less of a detrimental effect on health compared to chronic stressors, as suggested by Dharbhar (2008). These researchers found that exposing rats to an acute stressor actually benefited immune functioning through an increase in the concentration of T lymphocytes in the blood of these rats, thus demonstrating an 'immunoenhancing' effect. This means that we should not always assume that all stress is bad for our health, but simply that occasional, moderate exposures to acute stressors may even be beneficial.

+ There appears to be a role in stress in the progression of seemingly unrelated diseases, such as HIV, through immunosuppressive effects, as suggested by Pereira et al (2003) who found that pre-cancerous cervical lesions were more likely to develop in a group of HIV-positive women if they had experienced highly stressful events one year prior to their initial diagnosis. Therefore, this also has practical and economical implications - if public health services were to offer guidelines on methods of lowering stress, this may reduce the rate of disease progression (and thus treatment) as well as prevent initial development.

— However, there are practical and theoretical issues with the use of the majority of stress research. For example, most of the research is based upon non-human animals, who are exposed to 'stressors' such as electric shocks or food deprivation. These are very different to the kinds of stress that humans would be exposed to and affected by, and the effects in humans may vary more substantially due to accounting for personality differences. Therefore, such research may lack mundane realism and the findings may have low ecological validity as a consequence (i.e. limited to the research setting within which they were initially found).

Part 3 — Sources of Stress: Life Changes:

- Life changes, both negative and positive, can be considered stressful because they often require physical and/or psychological adaptations, which are supported by stress. Therefore, we can say that there is a positive correlation between an increasing extent of adaptation required and the increasingly high levels of stress associated with this life change. This becomes

problematic due to people often experiencing several life changes, and the associated stress accumulates i.e. a 'cumulative effect'.

- The stress associated with life changes can be objectively and quantitatively measured using the SRRS or Social Readjustment Rating Scale. Each stressful event is given a different unit, or LCU e.g. divorce having an LCU of 73 whilst marriage has an LCU of 50. The researchers, Holmes and Rahe (1967) found a positive correlation between increasing LCU scores and the increasing likelihood of developing an illness, with this risk increasing by 50% once the 300 LCU threshold had been reached.
- In a prospective and double-blind study, Rahe et al (1970) confirmed his previous conclusions by finding that US Navy personnel who had experienced highly stressful life events 6 months before deployment, as measured using the Schedule of Recent Experiences, were significantly more likely to experience illness during their deployment. Therefore, this suggests that life changes may be able to predict the likelihood, and even types, of falling ill.

— Researchers who have attempted to quantify the stress associated with each life change may be ignoring the effects of individual differences, as suggested by Byrne and Whyte (1980). There are varying circumstances associated with each life event which can make it more or less stressful. For example, the reasons for getting a divorce are important to consider e.g. if the relationship was abusive, then at least one partner will feel that the divorce has lifted a burden from their shoulders. Therefore, this means that we cannot make universal assumptions - each life event affects each person differently, alongside changing circumstances unrelated to the original life change. This questions the validity of life changes as a source of stress.

— A second key methodological issue is the reliance of research into life changes on correlational studies. These can never demonstrate a 'cause and effect' relationship between two variables and also do not account for the 'third variable problem' i.e. there may be a third variable which has affected both outcomes and which has not been studied. Therefore, it is difficult to make causal conclusions on the basis of such research, further reducing the validity of life changes as a source of stress.

— Some researchers, such as DeLongis et al (1988), have suggested that it is important to make the distinction between life changes and daily hassles, the latter of which may have a greater effect on the development of stress. The researchers studied 75 married couples, and found that the accumulative effect of several seemingly 'minor' daily hassles produced greater stress than any one life change. Therefore, previous studies investigating life changes may not have accounted for the confounding variable of daily hassles - a divorce is stressful, but is made even more so with financial issues and mental health problems.

Part 4 — Sources of Stress: Daily Hassles (Lazarus, 1980):

- Daily hassles are very different to life changes - daily hassles are frequent and predictable, thus being the opposite of life changes (unexpected and rare). Daily hassles can be considered distal causes of stress, because they directly cause stress, whereas life changes can be considered proximal causes of stress, because they indirectly cause stress. For example, a major life change of being married brings with it many daily hassles, such as arguments over finances, learning that your partner is very untidy and changing social arrangements.
- Lazarus suggested that each time we experience a daily hassle, we go through two processes: we first assess the severity of this hassle (primary appraisal) and then consider whether we are able to cope with the hassle on this basis (secondary appraisal).
- Kanner et al (1981) investigated whether daily hassles were a larger or smaller source of stress compared to major life changes. 100 participants independently completed the Hassles Scale every month for three-quarters of a year, and then self-reported any major life changes one month before and after the main study, using a measure similar to the SRRS. Any signs of mental illness or disturbance were then measured using the Hopkins Symptoms Checklist.
- Overall, the researchers reported that despite there being a positive correlation between daily hassles and stress, daily hassles proved to be significantly more stressful than major life changes. This supports the ideas of DeLongis et al, where the cumulative effect of many 'minor' daily hassles are more difficult to adjust to, and therefore are more stressful, compared to life changes.

— Some researchers have suggested that adopting an interactionist approach to explaining the sources of stress may be more beneficial than looking at daily hassles or life changes in isolation. For example, according to the amplification hypothesis, the severity of daily hassles may become 'amplified' or over-exaggerated when accompanied by major life changes, as suggested by Li (1991), where such hassles may therefore be enough to push us over the edge. An example of this may be that the daily hassle of losing a set of keys is amplified when a new mother has to pick up her child from the nursery. Therefore, it may be more useful to study how these two factors interact!

— Just as there are individual differences between different people as to how daily hassles affect them, the same differences can be applied to men and women, as suggested by Helms et al (2010), due to varying gender roles. For example, running out of washing powder or bin liners may be perceived as a far greater and stressful daily hassle for women, compared to men, whose typical gender role is to look after the home. Therefore, this is further evidence to suggest that we cannot and should not generalise the severity of daily hassles to both genders, thus being an example of alpha bias.

— Most of the research carried out into the effects of daily hassles, most notably by Kanner et al, are retrospective, meaning that they rely on the accuracy of participant's memory and recall. This may become particularly problematic when participants are asked to recall all of the daily hassles experienced during the past year, many of which are seemingly trivial (such as losing your keys) and so are far more likely to be forgotten. Therefore, this suggests that the validity and reliability of such studies is compromised, and that prospective studies may be a more reliable alternative e.g. Rahe et al (1970).

Part 5 — Sources of Stress: Workplace Stress:

- It has been suggested that workload and control are the two main factors associated with workplace stress, as depicted by the job demand-control model (Karasek, 1979). According to this model, the degree of control that an individual has over their work is more important than workload in terms of determining stress levels. Therefore, if two individuals have the same workload, if one is less stressed than the other, then this suggests that they have a higher degree of control over their work e.g. greater flexibility etc.
- This was demonstrated by Bosma et al (1997) who found that there was no correlation between stress-related illnesses and workload in a sample of 10,000 Whitehall civil servants, but rather a strong negative correlation between a decreasing degree of control over work and increasing levels of stress/incidence of stress-related diseases. This stood true even when accounting for lifestyle and personality factors, using a statistical averaging technique. Therefore, this confirms the original prediction made by Karasek's job demand-control model.
- Such a theory can also be demonstrated in a natural setting/experiment, as shown by Johansson et al (1978). These researchers, when studying a Swedish timbre production factory, that the 'finishers' (with little control over their work, high levels of responsibility and undertaking roles which required high levels of skill and concentration, even with repetitive work) had higher levels of adrenaline and noradrenaline in their urine samples, compared to the 'cleaners' working in the same factory (with high control over their work and low levels of responsibility, due to being reliant upon the finishers). The concentrations of these hormones increased throughout the day for the finishers (as shown by consecutive urine samples) in accordance with increasing rates of absences and stress-related illnesses, whilst the opposite was true for the cleaners. Therefore, this again provides further support for Karasek's model and the idea that control is more important than workload as a source of stress.

— Bosma et al (1997) may have incorrectly assumed that maintaining a higher degree of control over your work is less stressful - the converse may be true, as suggested by Meiser et al (2008). Meiser suggested that more emphasis should be brought upon self-efficacy, which is an individual's perception about how well-equipped they are to

complete the task at hand. This idea was supported by the researcher's 2008 study, which found that (after participants completed a questionnaire on self-efficacy) that there was a negative correlation between decreasing self-efficacy and increasing stress associated with increased control. This makes sense, considering that a person with high levels of self-confidence in their own abilities may struggle with having little control over their work and making few decisions, because they feel that they are capable of more. Therefore, self-efficacy should be emphasised as being a subjective perception but also influential in the development of stress.

— The Whitehall studies in particular suffer from a lack of control over confounding variables. Workload and control are not the only two factors associated with a job - pay, conditions, colleagues, the insistence of a boss to complete tasks and subjective feelings of responsibility all contribute towards the stress felt by the individual. Therefore, this reduces the validity of Kasarek's job demand-control model as an explanation for sources of stress because it only focuses on a very narrow part of working life.

— In addition, Karasek's job demand-control model may also be considered as an over-simplified perspective of working life. Many other confounding variables, such as those described above, are not accounted for within the model and so it is unknown whether these factors have a greater impact on the development of stress compared to workload and control. In addition, there is an over-emphasis on the subjective nature of control - an individual's perception of their control may not accurately reflect the actual, objective measure of control they are experiencing. This discrepancy would only be further distorted in the case of experiencing major stress.

Part 6 — Measuring Stress:

- The two main self-report measures of stress are the Social Readjustment Rating Scale (SRRS) and the Hassles and Uplift Scale.
- The SRRS is comprised of 43 items which are ranked on a scale of 1 to 43, 1 being the most stressful and having the largest LCU. Each 'item' represents a stressful life-event which is assigned a life change unit (LCU). This was based upon Holmes and Rane's original sample of participants who rated the extent to which they would need to adjust in response to each of the 43 items, on a scale of 1-1000. The mean values were calculated and divided by 10 to produce an LCU value.
- The SRRS typically involves participants recalling any major life changes which have occurred in their lives over a set time period.
- The Hassles Scale was developed by Kanner et al (1981) and is made up of 117 items, all of different severity in terms of provoking stress. This severity was measured (by Kanner's original sample) on a three-point Likert-like scale. These items include losing your keys, disliking work colleagues and financial strains.
- On the other hand, using a polar principle, the Uplift Scale used the same methodology as above, but using positive, stress-reducing events. These include getting enough sleep and being amicable with work colleagues, thus forming 135 items.
- DeLongis et al combined the two measures in 1988, to provide a more balanced measure of items which contribute or take away from stress.
- A third (objective) measure of physiological stress would be the use of a Skin Conductance Response (SCR). Electrodes are attached to the index and middle fingers, where an increase in sweat (caused by increased activity in the sympathetic branch of the autonomic nervous system, as dictated by the hypothalamus) coincides with an increase in conductance, producing readings on a 'polygraph' against a baseline measure (a non-stressful or 'tonic' conductance value).

— Despite skin conductance responses being an objective and reliable measure of physiological responses to stress, these measures still ignore individual differences, such as the variability of SCRs between individuals at rest. Stabiles experience little such variability, whilst labiles experience significantly higher levels of variability. Therefore, this suggests that, even when a baseline tonic conductance value is taken, individual differences in conductance still have not been taken into account, which may either under- or overestimate the extent of each individual's stress.

— There are significant differences between taking a global or specific approach towards assessing stress. The SRRS and the Hassles and Uplifts Scales both take a global approach in

that they consider multiple factors interacting together to produce a set value of stress or contributing towards a stress-related illness. However, this (ironically) lacks the specificity of a specific approach, in that specific stressful major life changes or daily hassles may be associated with the development of specific illnesses. For example, the death of a loved one is more likely to lead to depression than pregnancy, despite both having similar LCU values. Therefore, this suggests that global measures of stress have little predictive value of the likelihood of developing specific illnesses.

— All three types of stress measurement scales suffer from validity issues, as suggested by Dohrenwend et al (1990) because different participants may understand each item in different ways. For example, 'death of a friend' may mean the death of a close friend whom the individual has known for years for one participant, whilst the same item may mean the death of an acquaintance for another participant, due to the subjectivity of the term 'friend'. Therefore, the phrasing of certain items is not clear in all cases, and would need to be further clarified to increase the validity of these methods.

Part 7 — Individual Differences in Stress - Personality Type:

- Researchers have suggested, such as Friedman and Rosenman, that certain personality types are associated with an increased risk of developing certain illnesses, such as coronary heart disease.
- Those with a Type A personality (characteristic traits being hostility, competitiveness and time urgency) are especially likely to develop CHD. This was based upon evidence provided by Friedman and Rosenman, where 257 out of the 3000 males studied, none of which had CHD at the beginning of the prospective study, had developed CHD five years after the initial structured interview. 70% of these individuals had Type A personalities, which supports the view that the Type A personality is particularly vulnerable to external stressors (due to their hostility) and more likely to live a fast-paced, stressful life.
- This is in contrast with a Type B personality, whose characteristic traits are opposite to those with a Type A personality i.e. adopting a casual and slow-paced attitude to life, being accepting of competition (rather than fiercely competitive) and being amicable.
- Temoshok (19870 suggested that there is a third personality type - type C, and this is thought to be particularly linked with an increased risk of developing depression. These individuals are keen to please others but often do so through suppressing their own emotions. Dattore et al (1980) found that 75 cancer patients (out of a group of 200 Vietnam War veterans) reported significantly greater levels of emotional suppression and fewer depressive symptoms, compared to a control group of non-cancer patients. This supports Temochok's original idea that type C individuals are at a greater risk of developing cancer, but also that such emotional suppression may mean that sufferers cannot or do not want to recognise that they have depression.

— It could be that age is a more reliable predictor of the development of cancer compared to the incidence of individuals with Type C personalities, as suggested by Greer and Morris (1975). These researchers found a strong positive correlation between Type C personalities and increasing cancer incidence rates, but only up to the age of 50. Afterwhich, there have been inconsistent findings and causal conclusions being incorrectly made, mostly due to the lack of replication of studies in this field. This therefore reduces the validity of personality types as an explanation for stress.

+ However, there is evidence supporting the link between Type A personalities and an increased likelihood of suffering from stress-related diseases, as suggested by Edigo et al (2012). Out of a sample of 150 Spanish men and women below the age of 65, Type A personalities were at a significantly larger risk of developing a stroke, even when lifestyle factors (e.g. diet and alcohol consumption) had been accounted for. This is compelling evidence to suggest that personality types may exert a larger influence on the progression of stress-related diseases than lifestyle factors, thus allowing for more effective medical treatments to be developed which focus on stress.

— The Type A personality type may be considered as too broad and general because it includes vastly different traits i.e. competitiveness, time urgency and hostility. Therefore, as suggested by Dembrowski et al (1989), it may be more useful to focus on one specific element of a Type A personality - hostility. These researchers found, whilst analysing data from The Western Collaborative Group Study, a strong positive correlation between increasingly high CHD incidence rates and increasing hostility ratings, as was also supported by Carmelli et al (1991). Therefore, this suggests that more focus is required on the individual elements of each personality type, whilst making links between each element and the incidence of specific stress-related disorders.

Part 8 — Individual Differences in Stress: Hardiness:

- Hardiness, according to Kobasa (1979) and Maddi (1986), refers to our resilience and adaptability to everyday changes in our lives, thus providing us with 'existential courage' i.e. the willpower to carry on.
- Hardiness can be measured according to an individual's level of commitment (the extent to which they submerge themselves in new tasks and give it their all, viewing challenges as opportunities for self-improvement as opposed to being impossible), challenge (individuals with high levels of hardiness take a positive outlook on stressful situations and see such situations as opportunities to better adapt) and finally, control (individuals with high levels of hardiness believe they have, and so consequently do, take on a large responsibility for the events of their lives and so also believe that they have a high degree of control).
- These three dimensions used to measure hardiness have been supported using research evidence. For example, Kobasa (1979) found significant differences in the effectiveness of managers and their ability to cope with stress, as measured using the Schedule of Recent Experiences and from a sample of 670 American male managers. Those who were able to most skillfully cope with the largest amount of stress also displayed the highest levels of resilience (as measured according to the dimensions of commitment, challenge and control), suggesting that hardiness allows individuals to cope with stress through taking a new, positive approach.
- This trend was also supported by Maddi (1987) who found that out of 400 managers in the Bell Telelphone Company during a period of reorganization, there was a significant increase in the incidence rates of stress-related illnesses (such as strokes and CHD) amongst the majority of the managers, whilst the remaining third actually showed improved productivity and a decreased likelihood of developing stress-related illnesses i.e. a negative correlation. Therefore, these findings suggest that such differences were caused by individual differences in levels of hardiness and thus mechanisms of coping with stress.

— Research suggests that Bartone's 'Dispositional Resilience Scale' (2000) may be a more accurate measure of hardiness compared to the current use of the three hardiness dimensions (commitment, challenge and control), as suggested by Funk (1992). For example, previously used scales asked participants to rate the extent to which negative traits applied to them - this may act as a confounding variable because this technically measures neuroticism, as opposed to hardiness. Therefore, the implication is that hardy people are also neurotic, which may not always be the case. Thus, the removal of this confounding variable is required to increase the validity of the measurement of hardiness.

+ There is evidence supporting the link between increased levels of hardiness and an increased capacity of dealing with stress in a healthy manner (i.e. a positive correlation), as marked by reduced physiological changes in response to stressors. This was demonstrated by Contrada (1989), who found reduced blood pressure fluctuations (thus remaining closer to the original, resting rate) in males who were assessed as having high levels of hardiness. Therefore, this also suggests that there may be health benefits associated with increased hardiness.

— Such a link between increased hardiness and health benefits was demonstrated by Contrada (1989). However, this example of research may be considered as correlational because there is still no known mechanism linking hardiness and stable, healthy blood pressure. It could be that hardy people maintain their low stress levels through making good lifestyle choices, such as regularly exercising and avoiding excessive alcohol consumption. It could also be the case that hardy people may find certain stressors less stressful than the neurotypical population, and so experience reduced physiological arousal. Either way, there is a lack of a mechanism, which draws into the question the validity of hardiness as an explanation for individual differences in stress!

Part 9 — Managing and Coping with Stress: Drug Therapy:

- The two drugs mainly used to cope with stress are Benzodiazepines (e.g. Xanax) and Beta Blockers (e.g. Propranolol).
- Benzodiazepine molecules attaches to GABA neurotransmitters (an inhibitory neurotransmitter which reduces the likelihood of an action potential being triggered in the postsynaptic neuron) and this combination then binds to GABA-A receptors on the post-synaptic neuron. This triggers the opening of voltage-dependent chloride ion channels in the postsynaptic neuron, causing chloride ions to diffuse into the neuron down a concentration gradient, thus increasing the negative charge inside the neuron and making it more difficult for repolarisation and resting potential to be established. This results in a decreased frequency of nervous impulse transmission within the synapses of the brain, thus reducing the psychological (stress) effects associated with the fight or flight response.
- Beta blockers affect the sympathomedullary pathways in the body, as opposed to exclusively synapses within the brain. Beta blockers bind to beta-adrenergic receptors on the postsynaptic membrane, preventing depolarisation and thus reducing the frequency of nerve impulse along motor neurons to the effector muscles or glands. Thus, through preventing the action of adrenaline and noradrenaline (which would usually bind to these beta-adrenergic receptors), the physiological effects of the fight or flight response are weakened. This results in decreased heart rate, the rectum relaxing, vasodilation and pupil constriction.
- The key difference between these two drug therapies are the area of the body upon which they act (i.e. either the brain or the sympathomeduallary pathways), the neurotransmitters or hormones they affect (i.e. wither GABA or adrenaline/noradrenaline) and whether this causes unconsciousness (as is the case with benzodiazepines due to acting on the brain).

\+ Evidence from randomised, double-blind placebo studies, as reviewed by Baldwin et al (2013), give strong support to the idea that some benzodiazepines offer some relief from stress-related conditions, and at a significantly higher rate compared to a placebo. This type of experimental method is particularly favoured by drug trials due to the use of a double-blind study (where neither the patient nor the researcher knows which drug is being administered, and so reduces the effects of researcher bias) and also contains a placebo group (which accounts for the psychological placebo effect). However, due to the severity of the side effects and dependence associated with benzodiazepines, alternatives may be a better option for some individuals, such as biofeedback.

— Drug therapies can only treat the proximal symptoms of stress i.e. anxiety. Therefore, such therapies do not address the main cause of stress (i.e. the distal cause) which is the activation of the fight or flight response. This means that for patients with chronic stress, alternatives may be a more viable option, especially considering the potential 'paradoxical outcomes' associated with the use of drug therapies i.e. where the drugs only aggravate the condition which they are trying to treat.

— A major issue associated with the use of drug therapies is the risk of dependency and side-effects, as suggested by Gaind and Jacoby (1978). For example, weight gain, drowsiness and unconsciousness (specific to the use of benzodiazepines) are all serious issues to consider. Dependency on such drugs can lead to tolerance, whereby the body and synapses, specifically the voltage-dependent calcium ion channels embedded in the postsynaptic membrane, become less responsive to the effects of the drug. Therefore, this may lead to side effects with an increased severity (due to the overuse of drugs) or patients becoming frustrated and stopping treatment altogether. Regardless, side effects and dependency may mean that drug therapies are more suitable for treating short-term stress conditions, as opposed to chronic example.

Part 10 — Managing and Coping with Stress: Stress Inoculation Therapy (Meichenbaum and Cameron):

- Stress Inoculation Therapy is based upon the cognitive approach to managing stress, and suggests that by changing the way we think about and anticipate stress (cognitive appraisals), we can decrease negative and irrational/catastrophic thinking and implement more effective behaviours. The researchers suggested that patients must progress through the three stages of conceptualisation, skills acquisition and rehearsal, and finally the real-life application and follow-through phase. Relapse is considered an inevitable part of stress management and is built into the process, meaning that the time spent in each stage will vary depending upon the individual.
- The first stage is conceptualisation. Together, the patient and therapist clarify the patient's stressors, focusing on minimising the sources of stress which they can change, whilst developing new strategies to deal with the sources of stress which they cannot change. The emphasis is that an inability to change this stress is not catastrophic, but rather an opportunity to develop new skills. Thus, the patient's view of managing and coping with stress is changed from negative to positive, through changing cognitive appraisals and the patient being viewed as the expert of their own conditions, who can come to terms with this in a therapeutic environment provided by the therapist.
- The second stage is skills acquisition and the rehearsal phase. This is where the therapist teaches the patient skills which can be used to manage their anxiety, such as breathing techniques and the use of meditation. Consistent with focusing on the cognitive aspects of stress, the therapist may give examples to the patient of 'coping self-statements' i.e. encouraging statements which the patient can use to reinforce the effectiveness of their stress management. The patient accepts that they cannot anticipate all sources of stress, but can plan on how to manage most!
- The final stage is the real-life application and follow-through phase. The patient is able to put their skills learnt in stage 2 into practice, through the use of role-play and potentially virtual reality systems. 'Personal experiments' are assigned, whereby the patient deliberately puts themselves into stress-provoking situations, in an attempt to implement the skills they have learnt. Relapse prevention is acknowledged as inevitable and seen as an opportunity to further the skills of inoculation that the patient has i.e. the way they anticipate and deal with future stressors.

\+ The focus of SIT on inoculation means that it is more likely to produce long-lasting improvements in the stress management techniques of patients. This is in contrast to drug therapies, which provide a temporary and short-term method of stress relief. Therefore, SIT may be a more suitable alternative compared to drug therapies, for patients who suffer from chronic stress and so will also provide the reassurance that these patients will be equipped for a longer time period with the skills required to cope with their stress alone, rather than relying upon drugs.

\+ The main advantage of SIT is the flexibility. Programmes can be tailor-made for individuals, with a different emphasis placed on each of the three stages, thus improving the effectiveness of treatment for each person. As suggested by Litz et al (2004), SIT should not be limited to face-to-face interactions with therapists but could be adapted as part of online therapies for patients suffering from learning disabilities, depression or social anxiety (and so who would usually have trouble with the social aspect of SIT). The number and duration of sessions is also flexible, meaning that the patient can choose such sessions according to how much time and commitment they have.

— In an attempt to adopt a 'multidisciplinary' approach towards managing and coping with stress, SIT may have not focused enough on each element of stress and so reduced the effectiveness of such a treatment for others. For example, control may be a particularly important factor - a patient who feels that they have little control over their stress responses may only aggravate their stresses further, through negative cognitive appraisals of stress, as suggested by Hensel-Dittmena et al. These researchers suggested that SIT may be less effective for torture survivors for this exact reason - the lack of control perceived by patients means that their stress is prolonged, continuous and so more likely to be chronic. This means that it is important to consider each case on an individual basis, and assess whether SIT is the most appropriate approach of treatment.

Part 11 — Managing and Coping with Stress: Biofeedback:

- In line with the emphasis of SIT on control, the aim of biofeedback is to increase the level of control that patients have over their physiological processes that are associated with stress. Physiological activity in the brain, for example, can be measured using an EEG whilst respiration rates can be measured using a spirometer, which makes recordings on a kymograph.
- The main process of biofeedback is described by Budzynski (1973) as the patient learning to identify, modify and transfer (to real life) the learned changes to their physiological responses to stressors.
- The patient recognises their physiological responses to stressors through an auditory or visual signal. They can then train themselves to make adjustments to their physiological output, such as reducing their breathing rate or meditating, to lower the signal back to the normal baseline level, through the process of biofeedback.
- This is made more stimulating in the form of a game, where successful biofeedback responses result in, for example, the patient successfully completing a game or maze. Repetitive successful biofeedback responses are positively reinforced, and so lead to an increase in the frequency of such behaviour through operant conditioning.
- The effectiveness of SIT was demonstrated by Davis (1986) who found that urinary cortisol levels in a sample of breast cancer patients undergoing weekly SIT sessions (for 8 weeks), were significantly lower than a control, non-treatment group who experienced an increase in cortisol levels. Therefore, this demonstrates that SIT can be effective in lowering stress through the stabilisation of the HPA system (hypothalamic-pituitary-adrenal system) and that this can be achieved through biofeedback using the mechanisms of operant conditioning.

\+ There is evidence supporting the utility of biofeedback as a method of managing and coping with stress, as suggested by Lemaire et al (2011). These researchers found that the mean biofeedback scores for a sample of doctors practicing biofeedback over 28 days, fell substantially more compared to a control group who experienced smaller decreases. This suggests that biofeedback may be an effective method of managing and coping with stress!

— However, biofeedback may not be an appropriate stress treatment for all individuals, namely because it requires high levels of motivation (not only to pursue the training but also apply the skills learnt in the real world, which may be stressful in itself) and also an acknowledgement of the relationship between stress and physiological arousal, as depicted by the auditory or visual signal. Therefore, this means that biofeedback may be particularly useful for individuals who display certain personality or dispositional traits, such as high levels of motivation and hardiness.

— The use of biofeedback and relaxation together may be unnecessary, as biofeedback appears to be more effective alone as compared to the learning of relaxation techniques, as suggested by Bussone et al (1998). These researchers found that children who were treated for tension headaches using BART (biofeedback and relaxation) reported fewer symptoms and of a lower severity after one and three years compared to the control group who only used relaxation techniques. Therefore, this key difference suggests that biofeedback decreases the rate of symptom progression, and so may be more effective and economical if used alone.

Part 12 — Gender Differences in Coping with Stress:

- The key difference in the coping strategies used by either sexes is that men take on a problem-solving approach, whilst women take on an emotional-focused approach, as suggested by Lazarus and Folkman (1984). The first approach tackles the distal cause of stress head-on, whilst the second approach tackles only the proximal causes of stress or the associated stressors. This means that men are likely to find practical solutions to problems, whilst women tend to distract themselves and keep busy as a means of coping with stress.
- This difference was demonstrated by Peterson et al (2006) in relation to infertile males and females whose coping mechanisms were assessed using the self-report 'Ways of Coping'

questionnaire. Men found practical solutions to alleviate the stressor, whilst women more often accepted the blame and avoided directly confronting the stressor.

- A technique which is particularly used by women is the idea of 'tend and befriend', as suggested by Taylor et al (2000). From an evolutionary standpoint, it was not advantageous for women to engage with the fight or flight response because this increased the likelihood of abandoning their young. Instead, by forming social networks with other women from whom emotional support can be found, as well as caring and nurturing others through 'blending into' the current stressful environment, is a method of managing stress used by women as an alternative to the fight or flight response. This preference for seeking social support from other women was supported by Luckow et al (1998).
- The effects of oxytocin appear to be enhanced in females compared to males, and this may allow for the increased use of the 'tend and befriend' tactic. Therefore, the effects of oxytocin are enhanced by oestrogen but suppressed by testosterone, and therefore lead to differential rates of recovery of the HPA system after the release of cortisol, as suggested by Taylor et al (2002).

+ There is evidence to suggest that the different coping mechanisms used by men and women are dependent upon and specific to the types of stressors which each gender faces, as suggested by role constraint theory (Matud, 2004). This may reflect the fact that women tend to report more problems associated with their families, and so emotion-focused methods would be a more effective method of dealing with this. On the other hand, men tend to report more work-related problems, and so a practical or problem-focused method would be a more effective method of dealing with this specific situation. The perception of control that each patient has over their situation, as well as the idea of self-efficacy, also plays a major role. Therefore, gender differences in coping with stress may be reflective of the different stressors each are exposed to.

— However, a key problem with research into gender differences of stress coping mechanisms is the idea of retrospective research, as suggested by De Ridder (2000). Women appear to recall significantly more instances where they have used emotion-focused techniques to deal with stress, and so differences in stress coping mechanisms may only appear to be this way due to cognitive biases and differences in memory traces. Thus, the extent of gender differences may have been overemphasised using such research.

+ There is evidence supporting the use of the 'tend and befriend approach' at a higher rate in women than in men, as suggested by Tamres et al (2002). Women use this technique as part of an emotion-focused approach towards dealing with highly stressful situations and this may have a neurochemical basis, due to the action of oxytocin. The warm and nurturing element of the tend and befriend response may be reflected in the positive correlation between post-natal oxytocin levels and the strength of a mother-infant attachment, as suggested by Feldman et al (2007). Therefore, there may be neurochemical bases underpinning gender differences in methods of coping with stress.

Part 13 — The Role of Social Support in Coping with Stress:

- Social support refers to the intensity and amount of support we receive from the social support system within which we are integrated. The key to this is the degree of 'integratedness' and so having a closer-knit social circle with stronger attachments or bonds may provide greater social support compared to having a wider circle with less intense attachments or friendships.
- According to Schaefer et al (1981), the three basic types of social support are instrumental (practical) support, emotional support (improves the person's mood) and esteem support (increases the person's self-esteem and self-efficacy).
- Key to this idea is that the person providing the support does not need to be physically present in the environment of the stressed individual. For example, sending a 'Get Well' card can be a practical example of providing emotional support from afar.
- The effectiveness of social support in acting as a buffer against stress-related illnesses was demonstrated by Cohen et al (2015). 404 healthy participants reported how many hugs they'd received each day over 2 weeks, and they stress levels were assessed using a self-report technique (according to the number of interpersonal hassles experienced that day). After all participants were exposed to a common cold virus, the researchers found that those who'd reported the highest average number of daily hugs displayed the greatest immunity against the

virus and developed the least severe symptoms. Therefore, social support (in the form of emotional support i.e. hugs) can have immunoenhancing effects on the average person!

+ There is evidence supporting gender differences in stress coping mechanisms, and specifically the use of social support, which appears to be more frequented by women as opposed to men. This was demonstrated by Luckow et al (19980 who found that 25 out of the 26 studies reviewed showed that women played an active role in seeking out and engaging with social support networks, which may reflect their emotion-focused methods to stress management, as opposed to the practical problem-focused methods favoured by men.

— Social support may not always be useful, such as in situations where there is little stress, as proposed by Cohen and Wills' 1985 'buffering hypothesis'. Maintaining a psychological distance with stressors is allowed for through the use of social support, but the insistence of support during stressful situations is not always welcome and may produce more stress in itself compared to the actual stressor. Alternatively, excessive social support during times of little stress may lead to misunderstandings of one person being 'needy' or 'fragile' within the social support network. Therefore, social support isn't always the most effective method of stress management, and so its use varies considerably depending on the individual.

+ There is research evidence supporting the idea that social support, through providing emotional support, acts as a 'buffer' against stress-related illnesses and the progression of other illnesses, as suggested by Fawzy et al (1993). Cancer patients with malignant melanoma who attended support groups to voice their concerns and receive information about their condition (examples of emotional and instrumental support), reported higher rates of survival and natural T killer cell blood counts, compared to a randomly-allocated control group who received no such support. Therefore, this supports the immunoenhancing effects of social support.