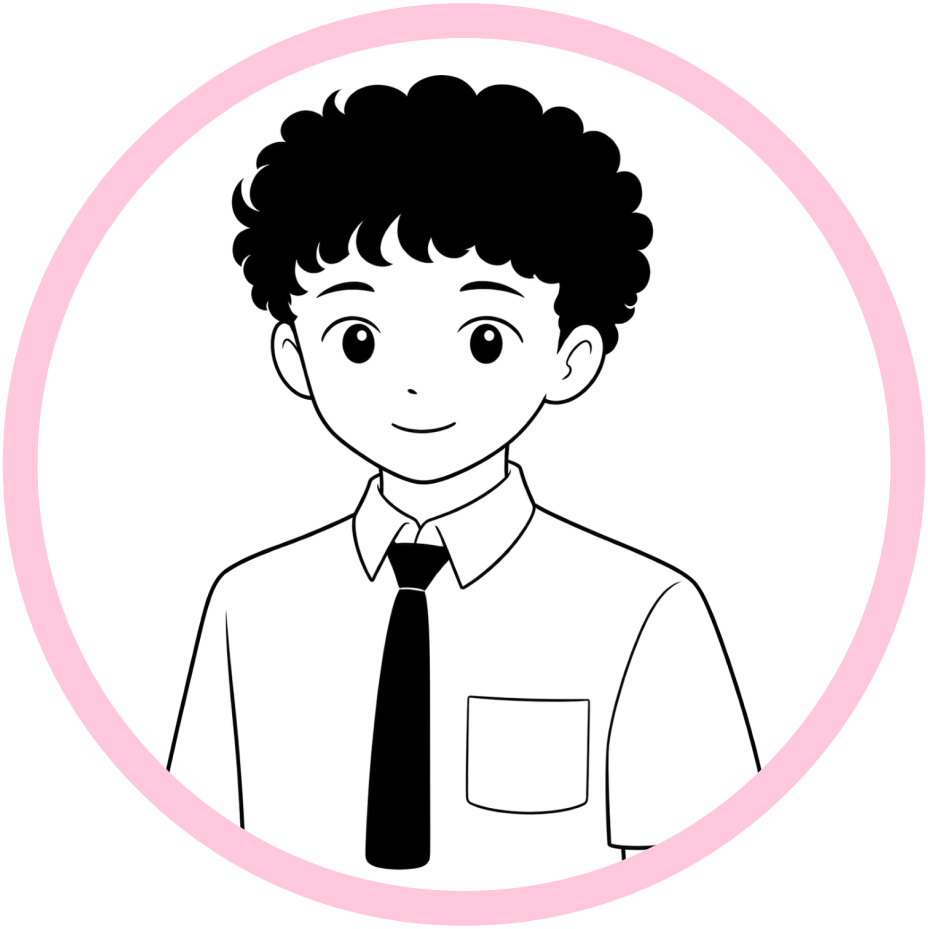
AQA A-LEVEL PSYCHOLOGY · 7182

PSYCHOLOGY



MARK SCHEME

3.3.7 STRESS IN ILLNESS

SCORE	PERCENTAGE
/65	%

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Q1.

[AO1 = 6 AO3 = 10]

Level	Mark	Description
4	13-16	Knowledge of the role of stress in illness is accurate with some detail. Discussion is thorough and effective. Minor detail and / or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	9-12	Knowledge of the role of stress in illness is evident but there are occasional inaccuracies / omissions. Discussion is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	5-8	Limited knowledge of the role of stress in illness is present. Focus is mainly on description. Any discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1-4	Knowledge of the role of stress in illness is very limited. Discussion is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content:

- stress and illness linked due to the effects of stress on the immune system
- mechanisms of immunosuppression – sustained production of cortisol reduces immune function; interferes with activity of white blood cells (leucocytes); reduced ability to fight infection
- stress linked to cardiovascular disorders (heart problems, high blood pressure, etc), infections (colds), cancer
- immune function is shown to be compromised in vulnerable populations, e.g. carers, students at exam time
- epidemiological studies show greater vulnerability in people with stressful occupations, e.g. air traffic controllers
- knowledge of role of stress in illness embedded in evidence.

Possible discussion points:

- use of evidence to support arguments that naturally occurring or induced stress affect immune function / response
- some stress can have a beneficial effect on immune function
- problems of drawing firm conclusions based on correlational data
- behaviour / lifestyle factors are a confounding factor, e.g. diet, lack of exercise, alcohol consumption, etc

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- individual differences (e.g. gender, personality type, hardiness) can mediate the responses of the immune system to stress, e.g. Type A more likely to experience stress-related CHD
- social support has been found to mediate effects of stress on illness
- discussion of implications, e.g. targeted strategies to reduce stress in vulnerable populations.

Credit other relevant material.

[16]

Q2.

[AO3 = 8]

Level	Marks	Description
4	7 – 8	Knowledge of links between stress and illness is accurate and generally well detailed. Discussion is effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and/or expansion of argument sometimes lacking.
3	5 – 6	Knowledge of links between stress and illness is evident. There are occasional inaccuracies. There is some effective discussion. The answer is mostly clear and organised. Specialist terminology mostly used effectively.
2	3 – 4	Knowledge of links between stress and illness is present. Focus is mainly on description. Any discussion is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.
1	1 – 2	Knowledge of links between stress and illness is limited. Discussion is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

Possible content:

- Stress and illness are linked mainly through the effects of stress on the immune system and the pathological effects of raised heart rate and blood pressure
- Direct studies of immune function in vulnerable populations eg students, carers for Alzheimer patients, nurses (eg the work of Kiecolt-Glaser)
- Epidemiological studies (eg studies on GPs, Marmot's work on civil servants)
- Controlled laboratory studies of vulnerability to illness in stressed participants (eg Cohen's study on the common cold)

Possible discussion points:

- Findings and conclusions of research studies supporting or contradicting links between stress and illness
- Some inconsistencies, and correlations between stress measures and illness often very low

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- Correlational nature of much of the data; no cause and effect conclusions
- Individual differences – some individuals/personalities more resistant to stress
- Problems in defining and measuring stress

Credit other relevant material.

Q3.

(a) **[AO1 = 2, AO2 = 2]**

AO1

Up to two marks for a brief description of the role of the endocrine system in mediating and responding to stress. Credit: release of adrenalin and noradrenaline from the adrenal medulla, hypothalamic production of CRF and the release of ACTH from the pituitary leading to production of corticosteroids (cortisol) from the adrenal cortex.

AO2

Up to two marks for application of knowledge of the role of the endocrine system to Mannie and Jilly. It is likely that students will focus on the differing susceptibility to illness and the role of cortisol. In Mannie's case the prolonged stress reaction leads to heightened cortisol levels which, over time, lower the immunity and hence make her susceptible to colds. Jilly responds to stress in the immediate term but then her endocrine system activity returns to normal. Credit references to GAS.

(b) **[AO1 = 2, AO2 = 2]**

AO1

Up to two marks for an outline of relevant personal variables. Students are likely to choose one of the following variables:

- Type A personality versus Type B / C – Type A's show time urgency, competitiveness and are more prone to illness especially CHD
- Hardiness – hardy characters see stress as challenge, show commitment to society, work, relationships, etc, feel in control of own life
- Locus of control – having an internal locus of control tends to offer defence against the effects of stress.

One mark for a brief outline of a relevant variable. Two marks for an outline with some expansion / detail.

AO2

Up to two marks for discussion of how the variable (personality type, hardiness or locus of control) might explain the different responses of Mannie **and** Jilly.
Example: Mannie is probably a Type A personality which means that she tries to be over-controlling at work, cannot delegate responsibility to others and becomes easily angered and hostile – her personality leads her to experience more stress than Jilly who is probably a Type B (or C) who is less driven and less controlling and therefore less affected by stressful situations.
For full marks expect reference to both characters and the work context.

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Q4.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

AO2 = 6

(a) Roy = Type B / B / Personality Type B
and
Mick = Type A / A / Personality Type A
(1 mark for each correct answer)

(b) It is people with Type A behaviour who are more likely to suffer the negative effects of stress. So in the stem it is Mick (competitive and angry when loses) who is more likely to suffer from CHD. Friedman and Rosenman research indicated that it is those with Type A who become ill as a consequence of their stress. Type B people such as Roy who doesn't get physically aroused at losing, are much less likely to experience the "fight or flight" response and so less likely to have raised blood pressure etc. Examiners need to remember that 'research' can include both theories and studies. For full marks there must be explicit engagement with the stem.

AO2 Mark bands
4 marks Effective analysis of unfamiliar situation Effective explanation that demonstrates sound knowledge of how personality factors can affect the body's response to stress and who is more likely to suffer from a stress-related illness.
3 marks Reasonable analysis of unfamiliar situation Reasonable explanation that demonstrates knowledge of how personality factors can affect the body's response to stress.
2 marks Basic analysis of unfamiliar situation Basic explanation of how personality factors can affect the body's response to stress.
1 mark Rudimentary analysis of unfamiliar situation Rudimentary, muddled, explanation of how personality factors can affect the body's response to stress demonstrating very limited knowledge.
0 marks No creditworthy material.

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Q5.

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- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

AO1 = 6

AO2 = 6

Research covers both theories and studies, thus candidates may focus on the more general nature of the relationship eg chronic stress leading to immuno-suppression; or they may focus on some of the specific studies into this relationship eg Cohen et al; Kiecolt-Glaser et al.
Evaluation can include methodological issues, such as the problems of correlational research, some of the studies were natural experiments; the problems with sampling bias. Other methodological problems could include a consideration of how the immune functioning was measured and what type of stressor was considered. Candidates might also consider that with some acute stressors, there may even be an increase in the immune functioning.

Animal research is acceptable as long as it refers to the immune system; for example Riley's mice. However, Brady's monkey is not a study of the immune system and therefore is not credit-worthy.

AO1 Knowledge and understanding	**AO2 Application of knowledge and understanding**
6 marks Accurate and reasonably detailed Accurate and reasonably detailed outline that demonstrates sound knowledge and understanding of research into stressrelated illness and the immune system. There is appropriate selection of material to address the question.	**6 marks Effective evaluation** Effective use of material to address the question and provide informed commentary. Effective evaluation of research. Broad range of issues and/or evidence in reasonable depth, or a narrower range in greater depth. Clear expression of ideas, good range of specialist terms, few errors of grammar, punctuation and spelling.
5 – 4 marks Less detailed but generally accurate Less detailed but generally accurate outline that demonstrates relevant knowledge and understanding. There is some evidence of selection of material to address the question.	**5 – 4 marks Reasonable evaluation** Material is not always used effectively but produces a reasonable commentary. Reasonable evaluation of research. A range of issues and/or evidence in limited depth, or a narrower range in greater depth. Reasonable expression of ideas, a range of specialist terms, some errors of grammar,

	punctuation and spelling.
3 – 2 marks Basic Basic outline that demonstrates some relevant knowledge and understanding but lacks detail and may be muddled. There is little evidence of selection of material to address the question.	**3 – 2 marks Basic evaluation** The use of material provides only a basic commentary. Basic evaluation of research. Superficial consideration of a restricted range of issues and/or evidence. Expression of ideas lacks clarity, some specialist terms used, errors of grammar, punctuation and spelling detract from clarity.
1 mark Very brief/flawed or inappropriate Very brief or flawed outline demonstrating very little knowledge. Selection and presentation of information is largely or wholly inappropriate.	**1 mark Rudimentary evaluation** The use of material provides only a rudimentary commentary. Evaluation of research is just discernible or absent. Expression of ideas poor, few specialist terms used, errors of grammar, punctuation and spelling often obscure the meaning.
0 marks No creditworthy material.	**0 marks** No creditworthy material.

Q6.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

AO2 = 4

There are a variety of different ways to answer this question: credit appropriate alternative answers.

Candidates could focus on critical life events as well as the underlying biological mechanisms. Research has shown that stress reduces the effectiveness of the immune system. People experiencing long-term stress are more likely to become ill and to take longer to heal than those who are not stressed. Sandy is experiencing two events that are on the SRRS and are known to be major stressors.

1 mark for a basic statement of the relationship between stress and the immune system and a further 3 marks for elaboration of this. For full marks, the elaboration must be linked to Sandy's situation. Credit can also be given to research evidence used to support / illustrate the explanation.

4 marks Effective explanation Effective explanation that demonstrates sound knowledge of the effects of stress and the immune system as applied to Sandy's wound healing.
3 marks Reasonable explanation Reasonable explanation that demonstrates knowledge of the effects of stress and the immune system as applied to wound healing.
2 marks Basic explanation Basic explanation of the effects of stress and the immune system.
1 mark Rudimentary Rudimentary, muddled, explanation of stress and the immune system, demonstrating very limited knowledge.
0 marks No creditworthy material.

Q7.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

AO3 = 2

This graph shows a fairly strong negative correlation between stress and white blood cell activity / the immune system. As the stress increases the immune functioning decreases. The following can all receive a mark: direction, strength, and a description of their relationship.

Q8.

(a) **AO2 = 1**

These experiences are known as daily hassles (1 mark). Accept hassles.

(b) **AO2 = 4**

Research has shown that these daily hassles play an important role in our health. Unlike life changes, these daily hassles can have a greater impact. Paula is experiencing several hassles, such as losing things and having too much to do, and as the stress from these hassles accumulates, so her health may deteriorate. Being unable to sleep is a sign of stress, which further reinforces the negative relationship between hassles and illness.
A more biological explanation might focus on the fact that with continued stress the body's immune system is impaired.

1 mark for a basic statement of the relationship between stress / hassles and illness and a further 3 marks for elaboration of this idea (this could include theory and / or research evidence). The elaboration must be linked to Paula's situation.

Q9.

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

AO3 = 4

There are two possible ways of answering this question and both are credit-worthy. Candidates can either describe the generic method of studying this relationship, i.e. using the correlational method. Or they can describe the methods used by a specific psychologist, such as Kiecolt-Glaser. However, it is important that the focus of the answer is on the methodology used. For example, Kiecolt-Glaser et al (1984) conducted a natural experiment using medical students.
She took blood samples before and during their exams and measured the NK cell activity as an indication of immune function. She then correlated the results of these two sets of data.

One mark for describing method(s) and further marks for elaboration, such as explaining how the variables were operationalised; or how the variables were controlled, or the use of direct versus indirect measures (questionnaires etc), or sample used.

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Q1.

This question was often very well answered, with some quite detailed accounts of the physiological mechanisms involved. Most answers referred to immunosuppression, and associated evidence and the body of research into the link between stress and cardiovascular disorders was used to good effect. The mediating effects of personality type often formed part of the discussion, but relatively few students opted to discuss the way in which workplace stress might result in illness, perhaps because they had compartmentalised their material and did not see it as appropriate.

Q3.

(a) There were many well-informed and exceptionally detailed responses to this part of the question, such that a fair number of students gained full marks here. Occasionally, the application was focused on just one character rather than both as required in the question. Weak responses appeared to be built on fairly flimsy knowledge of fight or flight and thus did not include any meaningful explanation of why Mannie regularly became ill.

(b) Both aspects of this part of the question were usually well done, although not all answers were linked explicitly to workplace stress. A number of students who tried to offer hardiness as a personal variable seemed unaware of the three elements of hardiness; challenge, commitment, and control. Those who had a sound grasp of the concept of hardiness tended to score well on application as at least one of the three elements could be linked to Mannie / Jilly.

Q4.

Most students correctly identified Roy as being Type B and Mick as Type A.
Research can refer either to theory or study; either would have been acceptable. Using knowledge of the role of constantly raised levels of adrenaline and the impact this might have on Mick's heart would have been creditworthy. Also, using research such as the Friedman and Rosenman study linking Type A with CHD would have received credit. However, many students missed the specific link of personality with stress and instead gave a more generic stress and illness answer.

Q5.

Some candidates produced excellent answers, although the AO1 tended to be of much higher quality than the AO2. Many candidates could describe in detail the studies, but struggled with the commentary, often resorting to cook book evaluation, which was often repetitive, such as 'it only used students so you can't generalise'. Candidates should also think before they criticise a study on ethical grounds; Cohen did obtain full informed consent from the volunteers and they certainly knew that there was the risk of getting a cold. Similarly, the common cold is, for the most part, not a life-threatening illness!

The other difficulty for many candidates was selecting the appropriate material, many seemed to think that any study on stress would be relevant, so they described in considerable detail studies that gained no credit (eg workplace stress, personality, SRRS etc.) Consequently their commentary gained no credit either. However, there were some very well informed answers, which used Kiecolt-Glaser's research effectively, often making the useful distinction between chronic and acute stress. Some candidates were also able to consider research, which suggested that sometimes stress could have a

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positive effect on the immune system.

Brady's monkey study is NOT a study into the relationship between stress and the immune system. This study usually confuses candidates, as demonstrated in the answers to this question.

Q6.

In general the answers to this question were good, with many candidates understanding the link between stress and the immune system. They were able to offer relevant research (Kiecolt–Glaser, Holmes & Rahe etc) and demonstrate detailed knowledge of the underlying biological processes. However, candidates were not very good at the application requirement of the question and this prevented them from gaining full marks. Candidates need to engage with the stem and give a sustained link; simply describing a study will not suffice.

Q7.

Most candidates offered accurate and detailed answers for this question.

Q8.

This is a good example of where candidates need to remain focused on the question and to read it carefully before launching into a formulaic response. This type of question requires candidates to apply their knowledge to an unfamiliar situation, to spend a little time thinking and not just giving the knee-jerk reaction of describing the HPA and SAM axis or even the GAS model, before getting to the link between stress and illness. Simply describing how stress affects the immune system in detail and adding "and this applies to Paula" is not really engaging with the question. However, those candidates who did take time to read the question were able to provide excellent answers, using the material in the stem to focus their response.

Q9.

The main focus of this question was on how psychologists have investigated the relationship. Candidates who had been told to expect specific questions on methodology were able to Psychology A (PSYA2) - AQA GCE Report on the Examination 2009 January series 4 provide some very detailed answers, often using one or two of the various studies carried out by Kiecolt-Glaser (eg punch biopsy and careers or blood samples and medical students). For those candidates who selected a relevant study, they were able to gain good marks within the time and space available. Unfortunately, some candidates did not appear to understand that this question was focused on the way in which psychologists have investigated the relationship and they gained few marks. Some candidates did not read the question carefully and missed the requirement to link stress and the immune system, instead writing about studies that investigated stress but not the immune system, these answers gained no marks. There was still a tendency for some candidates to give an APFCC formulaic answer, but embedded in it was the methodology and so much was credit-worthy.