

Study Psychology

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A-Level Psychology
Practice Paper
MARK SCHEME

This is a practice paper intended for revision following the **OCR** specification.

Paper 3:
Applied Psychology

2 hours



Section A: Issues in Mental Health

1. **Five marks** to describe the characteristics of a psychotic disorder. Examples include; reference to disorders such as schizophrenia and may draw upon ICD and/or DSM for the criteria for diagnosis (not essential), symptoms such as hallucinations, delusions, thought insertion, speech poverty, avolition etc.
- For example:** *Psychotic disorders are characterised by experiences and symptoms that involve disturbances in thoughts and perception. Individuals usually experience a loss of contact with reality. Positive symptoms include hallucinations, delusional beliefs, and disorganised thinking. People with psychotic disorders also often experience a range of negative symptoms, such as flattened affect (reduced outward expression of emotions), social withdrawal, and anhedonia (loss of interest). Schizophrenia is an example of a psychotic disorder. Schizophrenia affects both males and females with the age of onset slightly earlier in males (18-25 years). Males also report more severe positive symptoms such as hallucinations or delusions. ICD categorises the criteria for schizophrenia under the code F20. The DSM also includes rigid criteria and categorises schizophrenia alongside other psychotic disorders such as schizoaffective disorder.*

Other appropriate responses will be credited.

2. **Six marks** to outline brain abnormality as an explanation of mental illness. Examples include; volumes of brain structures, the size of ventricles, or levels of activity in different regions of the brain, but any explanation in relation to brain abnormality is creditworthy including reference to tumours or accidents.
- For example:** *Brain abnormality as an explanation of mental illness focuses on the internal anatomy and structure of the brain. It proposes that structural differences in physical parts of the brain or problems with functioning in the brain contribute to mental illness. Physical abnormalities can be investigated using post-mortem studies or brain scanning techniques. Coffey et al (1993) compared the size of the frontal lobes in depressed patients and non-depressed controls using MRI scanning technology. They found that the main frontal lobe volume in the depressed patients was significantly smaller. In schizophrenic patients, Andreasen et al (1990) found significantly larger ventricles when compared to controls. These physical differences may help explain why individuals experience problems associated with mental illness. Other research has shown how brain functioning differs in the brains of individuals with mental illness. Brain scans have shown how functional connectivity (FC) in the brain is associated with auditory hallucinations. For example, Hoffman and Hampson (2012) found that FC was reduced between the bilateral Wernicke's region and the anterior cingulate in schizophrenic patients compared to a control group. This suggests that brain functioning may be a credible, biological explanation for mental illness.*

Other appropriate responses will be credited.

3. (a) **Three marks** to explain what Szasz means by the statement in the question. Examples include; reference to medicalisation of mental issues, role of psychiatry, the misinterpretation or diagnosis of behaviour. Answers must make an attempt to link to the statement.

For example: *Szasz defends the claim that ‘there is no such thing as mental illness’ by revisiting his proposal from the 1960s that ‘mental illnesses’, should be viewed as behaviours that disturb or disorient others or the self. He argues some bodily illnesses are wrongly diagnosed as mental illnesses and that the term ‘mental illness’ reflects a judgement by other people about particular ways of behaving, which are usually maladaptive or negative. He continues to claim mental illness is a legal definition, which is socially constructed from the judgements made by those in society. Szasz concluded that over the past fifty years, psychiatry in the USA has become thoroughly medicalised and politicised.*

Other appropriate responses will be credited.

- (b) **Five marks** to evaluate Szasz’s view that ‘there is no such thing as mental illness’. Comments could be supportive or critical. Examples include; Arguments about mental disorders, cultures, diagnostic manuals, etc.

For example: *One supporting argument for Szasz is that definitions of mental illness can vary over time or between cultures. This means these definitions lack reliability, for example, the current version of DSM has been revised several times and continues to be reviewed. Disorders which were once classed as mental illness are no longer categorised as such, like homosexuality. Cultural norms are also subject to change over time, which will have an impact on the diagnosis of mental illness. However, in contrast to Szasz’s view is that modern science has proven many disorders do exist and research has identified biological factors such as genetics as contributing factors. For example, certain candidate genes have been implicated in the cause of disorders such as schizophrenia and obsessive-compulsive disorder. For example, Comer et al (2020) found an increased expression of the immune gene C4 has been linked to a greater risk of developing schizophrenia. Accepting that mental illness exists is a more ethical approach to dealing with vulnerable individuals and can open the door to support through therapy or drug treatment.*

Other appropriate responses will be credited.

4. **Five marks** to outline how a biological treatment could be used to treat one specific disorder. Examples include; drug treatment such as SSRIs or antipsychotics, reference to how the drugs works, or electroconvulsive therapy (ECT). Answers must relate to one specific disorder.

For example: *One biological treatment for depression is drug therapy. This can involve the use of antidepressants or anti-anxiety medication. As depression is categorised as mood disorder, individuals usually experience fluctuations in their biochemistry particularly with serotonin levels. One type of antidepressant drugs are SSRIs (selective serotonin reuptake inhibitors) which work by preventing the reuptake of serotonin at the synapse in neural pathways. These drugs will rebalance levels of serotonin in the brain helping stabilise mood. Another type of drug therapy is with anti-anxiety medication like benzodiazepines. Anti-anxiety drugs such as benzodiazepines work by enhancing the action of the neurotransmitter GABA, by encouraging the brain to slow down and subsequently reducing over-firing at the synapse. This has a calming influence on the brain reducing feelings of*

anxiety associated with depression. Drug therapy has been shown to be effective in treating individuals with depression.

Other appropriate responses will be credited.

- 5. Ten marks** to discuss to what extent the cognitive explanation of mental illness is useful. Both sides of the argument must be discussed. Examples include; reference to cognitive theories such as negative triad (Beck) or ABC model (Ellis), faulty thinking, irrational beliefs, deficits/ issues with information processing, testing and measurement of cognition, practical applications for treatment such as CBT or REBT. Opposing points may refer to inaccurate diagnoses, stigma/ labelling, negative implications for individuals and their families, subjectivity etc.

For example: *The cognitive explanation of mental illness focuses on how information is attended to and processed in the mind. Cognitive psychologists explore issues with metacognition such as irrational or dysfunctional thinking, as well as poor perception, memory, or language. The cognitive explanation relies on the idea that mental illness is based on faulty cognitions. This is a useful way to understand mental illness, as it helps to explain how internal mental processing prevents individuals from functioning effectively. This allows psychologists to test for processing issues by conducting assessments and identifying deficits in cognition. For example, a psychologist could investigate faulty or biased thoughts in individuals with depression by asking them to describe how they are feeling. This has practical applications in that individuals can be offered therapy like CBT to help overcome the irrational beliefs. CBT could include exploration of thinking patterns using Beck's negative triad (self, future, and world) for those with depression. Individuals with mental illness could be taught how to cope better with the demands of everyday living. The cognitive explanation is also useful as it can lead to a more accurate diagnosis for patients as their symptoms can be reliably measured against the criteria in the classification systems like DSM or ICD. For example, individuals with schizophrenia may report delusional beliefs or auditory hallucinations which are valid criteria in the DSM. However, as cognitions are difficult to measure objectively this makes the cognitive explanation less useful. For example, patients may present to a psychologist with symptoms they describe as problematic but there is no clear way of testing the credibility of this. Cognitive explanations rely on inferences which make the approach more subjective, particularly when compared against other explanations such as the biological approach. In addition, mental illness can vary between individuals, even with those diagnosed with the same disorder, and this makes applying cognitive explanations more difficult. However, cognitive explanations do provide a useful insight into how individuals experience mental illness and this can be used to inform therapy and treatment programmes.*

Other appropriate responses will be credited.

Section B: Options

Child Psychology

6. (a) AO1 (5), AO2 (5) to explain how the key research by Ainsworth and Bell (1970) could be used to help parents of young children.

For example: *Ainsworth and Bell (1970) investigated infant attachment behaviour using the 'strange situation' method. This eight-stage method was used to assess attachment types by measuring separation and stranger anxiety as well as exploratory behaviour. This study was a controlled observation in which participants were observed (from an adjoining room through a one-way mirror) as they participated in the strange situation. The interactions between infants and their mother during the enactment of the 'strange situation' were recorded. The study used a sample of 56 infant-mother pairs from white, middle-class backgrounds. The eight-stage procedure was standardised for all pairs and two observers dictated continuous narrative accounts into a dual channel tape recorder which also picked up the click of a timer every 15 seconds. The findings showed that children experienced high levels of anxiety when separated from their mother and when left with the stranger. They showed exploratory behaviour most often when the mother was present, either at the beginning of the procedure or on reunion. Ainsworth and Bell concluded that the presence of the mother (attachment figure) can tip the balance in favour of exploring the novel or unfamiliar situation rather than avoiding it or withdrawing from it. This information can help parents of young children to understand the emotional significance of their support. To prevent distress, parents should remain in close proximity to their children where possible and manage separations carefully. If they go somewhere new it would be better for the child if the parents stay close and encourage them to explore when comfortable. Also, parents could be advised that children will naturally display close, proximity-seeking behaviours on reunion after separation. Another conclusion from the study was that absence of the mother (or attachment figure) tends to heighten attachment behaviour and lessens exploration of a novel or unfamiliar situation. This advice could be shared with parents by suggesting they have substitute carers if they are to be absent from their child. If this was in a daycare setting, parents should ensure that their child develops an attachment to another significant person, to reduce separation anxiety. This means parents should ensure that carers are at least familiar to the child. The strange situation also highlighted how some children with different attachment types respond to separation. Insecurely attached children experience more prolonged anxiety even after reunion. This information could help new parents by explaining that some children may need sufficient time post-separation to display intense and prolonged attachment behaviours, without any negative consequences or lack of affection.*

Other appropriate responses will be credited.

(b) AO1 (2), AO3 (13) to discuss ethical considerations when conducting research into the development of attachment. Examples include; protections from harm (mental stress/ anxiety), confidentiality, informed consent/ parental consent, deception, social sensitivity, competence of researcher.

For example: *Ethical considerations in research aim to ensure the protection of participants from harm, during or after participating in an investigation. Ethical guidelines are outlined in the UK by the British Psychological Society (BPS) and include a code of conduct for all research. The code of conduct focuses on principles of respect, competence, responsibility, and integrity. In research with human participants this includes guidelines such as informed consent, right to withdraw and protection from harm. One ethical consideration in the research into the development of attachment could be protection from harm. This suggests that participants should leave the investigation in the same physical and mental state for which they entered. In Ainsworth and Bell (1970) during the strange situation procedure infants were exposed to separation and stranger anxiety. This created high levels of distress within the children and broke the ethical guideline of protection from harm. However, it could be argued that this was necessary to test the internal validity of the investigation, as Ainsworth and Bell (1970) used the eight-stage process to measure infants' responses to separation and stranger anxiety, as well as exploratory behaviour. They needed to measure anxiety to assess attachment types and children's behaviour around proximity-seeking and reunion. Another ethical consideration in attachment research is the right to withdraw. This is the idea that all participants have the right to leave an investigation at any point without any further obligation. In Ainsworth and Bell (1970) the children did not have any opportunity to withdraw from the strange situation, especially when it became uncomfortable. There was evidence from the observation that children attempted to leave when their mother left the room, but they were unable to do so. This meant that they experienced extreme distress and anxiety. However, as the children were only 49 and 51 weeks old, they could not ask to leave the study. They were too young to vocalise their request to leave, and their anxiety was measured as part of the strange situation method. Nevertheless, the researchers made sure that if distress became too much they would intervene and stop the procedure. One way in which research into attachment could be considered ethical is through informed consent. This is where participants are given full information about the nature of the study and consent to take part. In Ainsworth and Bell (1970) as the children were too young to give consent, this was done on their behalf by their mothers, who were also partaking in the procedure. This makes the procedure ethical because the mothers were made fully aware of the full eight stage procedure and were told that if at any point, they felt uncomfortable, they could stop the process. This ethical consideration was less evident in Bowlby's (1944) study of juvenile thieves. His sample included 44 boys who were referred to a Child Guidance Clinic for stealing, most of whom were under the age of 11. As they were referred to the clinic, they did not give their full informed consent. Another way in which research into attachment could be seen as ethical is that the researchers themselves are credible, competent professionals. Both John Bowlby and Mary Ainsworth were qualified psychologists specialising in attachment theory. Ainsworth and Bell (1970) used the strange situation method to test differences in attachment types and measure anxiety related to the attachment. They would argue that this was a necessary process, so the 'ends justify the means' suggesting that they had to expose the infants to anxiety in order to understand more about how attachments are formed. This research led to real life applications and offers a greater understanding of infant-parent interactions and attachment bonds.*

Other appropriate responses will be credited.

(c) AO2 (10) for application to the question by suggesting advice that a psychologist could give Helen about how to ensure that her daycare centre is an attachment friendly environment. Examples include: building rapport, phased induction with parents, key person approach, low staff-child ratios, attachment centred approaches.

For example: *One suggestion that a psychologist could give Helen is to provide a 'key person' approach as much as possible, and to keep her staff to child ratio low (e.g. about 1:3) particularly for the young children in the daycare centre. This way children can develop close bonds with key people to ensure that children feel safe and secure. This could be done by offering parents and children home visits or taster days at daycare to enable the children to build up rapport and relationships with the carers. During these days children could work on fun activities alongside their parents and the daycare staff member who may be assigned to them, by building a relationship through play, they should form a positive association. By including parents in the initial stages pre-daycare, will help children feel comfortable in the new environment as research shows that children will seek proximity but also will feel safe to explore novel spaces if parents are present. They could also receive rewards like praise for engaging in cooperative play with the carer, this would make them more likely to want to attend the daycare centre in the future. This also highlights the importance of carers being responsible for only a limited number of children at once, however, children may need to be familiar with a few members of staff in case of any absences. It would also be important for staff to maintain proximity with the children during the day and that they present an approachable/ safe exterior to them. Another suggestion is that staff training would be advisable to help educate Helen's staff members about the significance of attachment bonds and how to best model secure attachment styles. They could be shown videos which demonstrate the effects of anxiety provoking situations like separation as seen in the strange situation method, to highlight how children feel. Staff would need to feel empathy to encourage the children to develop new attachments with the children in their care. They could also be shown positive secure role model behaviours to encourage children to feel safe within the daycare environment and minimise distress. Helen could invite a psychologist in to do staff workshops where they have the opportunity to role play secure attachment behaviours. Helen could also offer refresher training each year to ensure the staff are reminded of the importance of this with children in their care. She could also offer team building opportunities and other incentives to her staff to allow them to bond as a group and promote a healthy working environment.*

Other appropriate responses will be credited.

7. (a) AO1 (5), AO2 (5) to use the key research by Haney et al (1973) to explain how prison can affect prisoners.

For example: *Haney et al (1973) conducted a laboratory experiment, although designed to be as naturalistic as possible, to investigate conformity to social roles in a simulated 'mock' prison setting. A basement corridor in the Psychology Department at Stanford University was converted into cells resembling a real prison. A sample of 22 males were selected from an original pool of 75 who answered a newspaper advertisement asking for male volunteers to take part in a psychological study of 'prison life' in return for a payment of \$15 a day for up to two weeks. The volunteers completed a questionnaire concerning their family background, physical and mental health, and attitudes to pathological and criminal behaviour. Each respondent was interviewed by one of two experimenters and the most suitable 24 individuals, who were deemed to be the most stable (physically and mentally) and least involved in anti-social behaviours were selected. On a random basis, half of the participants were assigned to the role of 'guard' and half to the role of 'prisoner'. The prisoners were first informed of the study when they were arrested from their homes or workplaces and taken to the police department. Those assigned the role of guard attended an orientation meeting on the day prior to the induction of the prisoners. At this time, they were introduced to the principal investigators, the 'Superintendent' of the prison (Zimbardo) and an undergraduate research assistant who assumed the administrative role of 'Warden'. They were told that the aim was to simulate a prison environment and, although given no specific instructions as to how to behave, told to maintain control and order without the use of any physical punishment or physical aggression. Once the prisoners were brought to the prison, the behaviour of both prisoners and guards was observed and recorded. However, the experiment, which was set to run for two weeks, had to be stopped after 6 days principally because of the pathological reactions of the participants. This study highlights how prison life can affect prisoners, mostly in a negative way. It is likely that real prisoners will experience initial anxiety and stress and subsequently end up feeling passive. Stress and depression are common psychological effects of imprisonment. Prisoners may already suffer from mental health conditions but also the stress of the prison experience can increase the likelihood of developing psychological effects. Bukshel & Kilmann (1980) found common reactions to imprisonment were restlessness, anxiety, and sleeplessness. In Haney's study the prisoners had initial feelings of disbelief at the oppressive atmosphere, and the prisoners first tried rebelling. As they were met with resistance from the guards they sought to work together to set up a grievance procedure. After this had failed, they experienced feelings of isolation, flattened affect, passivity, and dependence. This shows that real prisoners will soon resign themselves to the fact they have no autonomous control and must follow the arbitrary actions of those in power. In the study, five prisoners had to be released because of extreme emotional depression, crying, rage and acute anxiety, while others became excessively obedient. This shows the significant emotional response that prisoners may experience and how prisoners could become institutionalised. Psychology explains this as 'pathological prisoner syndrome' which centres on three factors; loss of personal identity; arbitrary control; and dependency and emasculation.*

Other appropriate responses will be credited.

(b) AO1 (2), AO3 (13) to discuss the validity of research relating to the effects of imprisonment. Examples include; ecological validity, mundane realism, internal validity, population validity, or temporal validity.

For example: *Validity is the idea that research should measure what it intends to, and by doing so valuable conclusions can be made. There are different types of validity; internal and external (ecological, population, temporal) which can all affect the outcome of a study. One way in which research into the effects of imprisonment is high in ecological validity is if 'mock prisons' are used to simulate real life. In Haney et al's (1973) study the Psychology Department of Stanford University was converted to resemble a real-life prison setting. The researchers created three small cells (6 x 9 ft) by replacing the usual laboratory doors with steel barred, black painted ones, and removing all furniture. They also created a solitary confinement facility to add realism to their prison. In addition, the prisoners were served three bland meals a day, allowed three supervised toilet visits, and given two hours daily for reading or letter writing. These factors increased the ecological validity of the study which allows for the results to be generalised back to those in real life prison settings. Another way in which research relating to the effects of imprisonment is valid is that variables can be strictly manipulated to demonstrate cause and effect. In the Haney et al study the findings showed that the independent variable (i.e. the role of prisoner or guard) was manipulated to measure the dependent variable (subsequent observed behaviour). From all the controls in the experimental set-up they were able to conclude that the effect of playing the role of prisoner or guard was the one contributing factor to how participants behaved in the prison setting. This gives the study high internal validity. However, one issue with research into the effects of imprisonment which affects the validity is that most studies use individuals who have volunteered to participate. For example, in Haney et al's study the sample were made up of 24 male volunteers selected from a newspaper advertisement, asking for participants for a study into prison life. Volunteer samples are not representative of the wider population, as they tend to share similar characteristics. For instance, those volunteering for Haney et al's study could have all been confident, extroverted young men. This would result in biased findings which limits the generalisation back to the wider population. Volunteer samples also have an increased risk of showing demand characteristics which too lowers the validity. Another way in which research into imprisonment lacks validity is that it is often out-dated therefore lacks temporal validity. Temporal validity refers to the extent to which findings from a study can be generalised to other historical times. For example, Haney et al was conducted in 1973 when social stereotypes of masculinity were well defined by American society. The study also was deeply embedded in the social context of the early 1970s, a time characterised by high levels of public debate regarding prison brutality, social rebellion, and anti-authoritarian sentiment in the USA. The participants (who were white, male, undergraduate students) were likely influenced by this culture. They could also have been aware of the 1970s society's norms from TV and film portraying stereotypical behaviour of prison life, such as what the role of a prisoner or guard is like. This could have influenced the subjective behaviour of the participants which restricts the generalisation to other times in history, lowering the validity of the findings.*

Other appropriate responses will be credited.

(c) AO2 (10) for application to the question by suggesting what advice a psychologist might give Michael about how to reduce reoffending by inmates released from his prison. Examples include; programmes such as anger management, restorative justice, planned employment schemes, social skills training, substance misuse programmes, thinking skills, etc.

For example: *One strategy that Michael could use to reduce reoffending by inmates released from his prison is to ensure they complete formal programmes like anger management, if necessary. Anger management is an intervention aimed at reducing reoffending by using cognitive behaviour therapy to tackle violence and aggression, mostly in violent prisoners. It aims to modify the effect of anger and decrease the likelihood of offending by changing how the perpetrators of violence respond to the physiological changes that they experience during angry outbursts. Michael could ensure that violent prisoners are identified and complete anger management as a form of CBT, which involves 3 stages; cognitive preparation, skill acquisition, and application practice. Michael could take information from prisoners criminal history as well as their recent sentencing to select who needs to be placed on anger management. Michael would need to ensure that his staff are trained appropriately in how to deliver anger management programmes effectively. Another strategy Michael could use is based on the principle of operant conditioning (reinforcement), this is token economy. Token economy programmes are examples of behaviour modification and can be used within institutions like prisons to encourage desirable behaviour. Michael could use these programmes with most of his prisoners regardless of criminal history. He would need to create a programme where desirable behaviours are rewarded by collecting tokens. These tokens have no extrinsic value but act as secondary reinforcers which are issued by prison staff when the prisoner exhibits desirable behaviour. These are later exchanged for genuine rewards a prisoner values, such as cigarettes or phone cards. Tokens can also be removed when prisoners demonstrate undesirable behaviour. The threat of losing tokens acts as negative reinforcement for more desirable behaviour. Again, Michael would need to ensure his staff are fully trained in the delivery of the programme and that prisoners are aware of what constitutes desirable behaviour. He might also need to get some feedback from the prisoners about the type of rewards which would motivate them to collect the tokens.*

Other appropriate responses will be credited.

Environmental Psychology

8. (a) AO1 (5), AO2 (5) to explain how the research by Czeisler et al (1982) could be used to influence the design of work schedules.

For example: *The research by Czeisler et al (1982) illustrates how biological rhythms can be used to influence the design of work schedules. Their aim was to show that when schedules are introduced which consider the properties of the human circadian system, subjective estimates of work schedule satisfaction and health improve, personnel turnover decreases and worker productivity increases. They hypothesised that work schedules that rotate should do so by successive phase delays and that the interval between phase shifts should be as great as is practical. Two methods of data collection were used in this study, firstly questionnaires to measure worker satisfaction, worker health, personnel turnover, and productivity before and after the introduction of new shift work schedules. An experimental method was also used, as Czeisler et al manipulated the shift work schedules of workers. A sample of 85 male rotating shift workers, aged 19 to 68 was compared against a control group of 68 workers. A rotating work schedule was designed and introduced that would consider the properties of the circadian timing system which focused on two key issues; the direction of rotation and the interval between phase shifts. Shift workers (the participants) on phase advancing work schedules were divided into two groups and placed on phase delay schedules; 33 workers continued to change shifts each week, and 52 others rotated shifts by phase delay once every 21 days. The 21-day phase delay schedule was originally designed so that work hours were shifted gradually by one to two hours per day for five days until the new shift time was attained. This would synchronise with natural biological rhythms. The results showed that the rotators reported significantly more problems with insomnia than the non-rotators. 81% reported that it took two to four days or more for their sleep schedule to adjust after each phase advance. Czeisler et al concluded that work schedules that rotate by phase delay with an extended interval between each rotation are most compatible with the properties of human biological rhythms. This information can help employers of shift workers design work schedules which are more in line with biological rhythms. They could do this by designing schedules that can maintain the temporal integrity of the circadian system and minimise negative effects or disruption for the shift worker. For example, the shift patterns could always be moved in a forward direction where workers could change shifts every three weeks (21 days). Employers could also allow workers to move the start time of a shift forward by one or two hours each day over five days, this would help minimise disruption to their natural body rhythms. Employers could allow workers to have more of an influence on the timings of their work schedule as some workers may be able to respond more effectively to shift changes and disruption. This could be discussed in one-to-one interviews with staff when starting employment. Employers could also ask staff to complete evaluation forms on a regular basis to measure job satisfaction, after the introduction of shift pattern changes, as Czeisler et al also conclude that the application of circadian principles to the design of schedules improves shift workers' job satisfaction. By having a more worker-friendly approach which enables more autonomy with biological rhythms will result in less staff turnover.*

Other appropriate responses will be credited.

(b) AO1 (2), AO3 (13) to discuss the free will and determinism debate in research into biological rhythms. Examples include; biological determinism, hard determinism, environmental determinism, free will/choice.

For example: *Determinism is the extent to which our behaviour is driven by factors beyond our control such as genetics or neurochemistry (biological determinism). Our external environment can also influence our behaviour such as upbringing or education (environmental determinism). Free will assumes that our behaviour is the result of free choices, where our decision-making governs our own destiny in life. One way in which the research into biological rhythms is deterministic is assuming biological rhythms, particularly circadian rhythms (about 24hr cycles) are preset by factors within our physiology. For example, biological rhythms are regulated by endogenous pacemakers, which are the body's internal biological clocks and can be influenced by exogenous zeitgebers (external cues). In the study by Czeisler et al (1982), they were able to show how disruption to biological rhythms by shift work can affect worker satisfaction and staff turnover. They found that 81% of shift workers reported that it took two to four days or more for their sleep schedule to adjust after changing their schedule. Czeisler et al suggested that work schedules that rotate by phase delay (e.g. over days/ weeks) with an extended interval between each rotation are most compatible with the synchronicity of our biological rhythms. This shows that biological rhythms are deterministic factors affecting our behaviour. Another way the research into biological rhythms is deterministic is in the way that external cues (exogeneous zeitgerbers) such as lifestyle, diet or social habits can influence how our body regulates internal processes. For example, a lack of light from working night shifts can disrupt sleep patterns and a shift pattern outside of a normal circadian rhythm can be problematic. For example, Czeisler et al rotated shift work patterns using a phase delay once every 21 days by comparing an experimental group to a group of workers who continued to change shifts each week. They collected self-report data and found that the workers clearly preferred the phase delay direction of rotation, and complaints that the schedule changed too often dropped from 90% to 20% among the workers on the 21-day phase delay rotation schedule. This shows that environmentally deterministic factors which disrupt normal biological rhythms can have a negative effect on behaviour. Conversely, controlling these factors can improve behaviour, as Czeisler demonstrated significant improvements in the health index of shift workers after changing their schedule to a rotating one, more in line with their natural rhythms. One way in which the research into biological rhythms is based on free will is that there are always individual differences in the lifestyle choices people make. For example, some individuals who work night shifts adjust easily to the change as they report being more of a 'night owl'. For instance, Duffy et al (2001) suggest that some people prefer going to bed early and rising early (larks) compared to those who prefer the opposite (owls). In addition, the findings from Czeisler could have been the result of personal preference. They used a self-report questionnaire to complete before and after the introduction of rotating work schedules, but the participant responses could be biased, particularly as the questionnaire was given in a workplace setting where there could be consequences if they reported more dissatisfaction. In addition, most people have the ability to choose when to eat and sleep when working shifts, these free choices can go against their internal biological rhythms. Another supporting view for the free will debate is that individuals can intentionally choose to adopt routines which realign their circadian rhythm. For example, the shift works in Czeisler et al's study were not told to avoid other external factors and some could have chosen to use melatonin or light therapy to help with the disruption to their natural rhythms. This decreases the reliability of their findings. Perhaps adopting a soft deterministic view accepting that our biology regulates our body's*

natural rhythms along with the free will choices that manage our cycles is a better solution. If we make sensible choices which support our internal biological rhythms, we can successfully manage lifestyle or work choices which negate these.

Other appropriate responses will be credited.

(c) AO2 (10) for application to the question by suggesting how a psychologist might help this airline company about how it could reduce jetlag among its passengers. Examples include; inducing biological changes such as taking melatonin supplements to control sleeping patterns, make schedule changes, initiate behavioural changes, control exposure to light and dark (using light box therapy).

For example: One suggestion the psychologist could give to the airline to help reduce jetlag amongst its passengers is to provide information leaflets or advice at the time of booking long-haul flights about the potential strategies they could take as individuals to avoid jetlag. For example, the airline could give advice by emailing all passengers with the confirmation booking information, ways to alter their sleep patterns in the days before flying to fit in with time zones in the destination being flown to. This would allow passengers the opportunity to adapt their biological rhythms to be more coordinated with the time schedule of the destination they are arriving in. This would reduce negative effects such as sleep disruption and jetlag. Another way the psychologist could give advice to the airline to help reduce jetlag amongst its passengers is to provide information about biological interventions like melatonin supplements. This is the main hormone released from the pineal gland, which is responsible for important biological rhythms, including the sleep-wake cycle. The suprachiasmatic nucleus (SCN) in the brain's hypothalamus sends signals to the pineal gland, which leads to an increase in the production of melatonin at night, helping to induce sleep. Melatonin supplements can help reduce the symptoms and recovery time of jetlag by resetting the circadian rhythms to a new time zone. Melatonin is considered particularly effective for travellers flying across five or more time zones, especially in an easterly direction, where it is typically more difficult to adjust the body clock to an earlier schedule (Herzheimer and Petrie, 2002). Melatonin can also help individuals fall asleep faster and experience better sleep quality, even when the body's internal biological clock is still in the original time zone. This would help passengers adapt more easily to the changing time zones when flying on long-haul journeys. This would benefit airlines in that passengers would perhaps report more positive experiences from flying long-haul and may be more likely to book to fly again.

Other appropriate responses will be credited.

Sport and Exercise Psychology

9. (a) **AO1 (5), AO2 (5)** to use the key research by Munroe-Chandler et al (2008) to explain the benefits of imagery in sport. Examples include; use of imagery in practice, MG-M imagery, how evidence shows benefits of imagery in sport.

For example: Munroe-Chandler et al (2008) wanted to examine the relationship between imagery use and confidence (self-confidence and self-efficacy) in soccer players aged 11-14 years competing at both the recreational and competitive levels. They predicted that MG-M imagery will be a significant predictor of both self-confidence and self-efficacy in young athletes. They also hypothesised that the relationship between MG-M imagery use and self-confidence and self-efficacy will be stronger in competitive athletes than recreational athletes (because self-confidence and self-efficacy are important to success in competitive sport). They used self-report methods to gather data in relation to young soccer players' use of imagery, their general self-confidence, and their self-efficacy in soccer. A sample of 125 young athletes were recruited from soccer leagues in south-western Ontario, Canada. The imagery questionnaire included statements such as 'I see myself doing my very best' for which the participants had to state whether they more or less often believed this. Confidence was measured using the 'Competitive State Anxiety Inventory (#2) for Children'. This included 15-items which measured somatic anxiety (physical signs) and cognitive anxiety (mental signs). Self-efficacy was recorded using a short 5-item questionnaire which asked participants to identify their belief in their mental abilities, for instance, on a scale of 0-100 (no confidence to complete confidence). Statements on this questionnaire included 'I am confident I can be mentally tough throughout a competition'. The findings showed no significant differences between level of play (competitive or recreational) as well as gender, or the number of years playing experience. The correlational results showed differences in types of imagery used but all types of imagery correlated, suggesting any form of imagery would have the benefit of improving motivation by improving self-efficacy and self-confidence. Munroe-Chandler et al were able to conclude that MG-M (Motivational General Mastery) imagery is a significant predictor of self-confidence and self-efficacy in young soccer players. Motivational General Mastery (MG-M) imagery, consisting of images related to mastery, self-confidence, and mental toughness (e.g. being able to overcome adversity) is a successful technique to adopt. They suggested that encouraging young athletes to use more MG-M imagery is one important avenue for enhancing their self-confidence and self-efficacy in sport. This allows for practical application back to sports players irrespective of whether they play recreationally or competitively. To improve levels of motivation in team sports, individuals and coaches should use imagery focused on positive outcomes. This highlights the importance of motivation in sport and confirms the link between how improved self-confidence and self-esteem can lead to increased expectancy of success (as this is what eventually leads to improved motivation in sport). Munroe-Chandler et al also conclude that it is important to match the function of imagery use (MG-M) with the intended outcome e.g. self-confidence or self-efficacy.

Other appropriate responses will be credited.

(b) AO1 (2), AO3 (13) to discuss the reliability of research into motivation in sport. Examples include; standardised procedures, replicability, control over variables, manipulation of variables, collection of quantitative data, lack of qualitative data, social desirability from self-reports, the use of multiple items to measure the same variable, the use of large samples, testing, and retesting.

For example: *One way in which the reliability of research into motivation in sport is high, is when standardised procedures are used to ensure all participants experience the study in the same way. For example, in Munroe-Chandler et al (2008), all the 125 participants (56 male, 69 female) all of whom were soccer athletes with ages 11–14 years completed the same questionnaires to test imagery, confidence and self-efficacy. The questionnaires were standardised self-reports which had previously been assessed for reliability for example, the Sport Imagery Questionnaire for Children (SIQ-C) showed high test re-test reliability. This included 21 items measuring the frequency of children’s imagery use and was given to all the participants in the study in the same way. This ensures that replication is possible and reliability is high. Another way reliability is high in research into motivation in sport is when the method of data collection involves analysis of quantitative data. This is numerical data which can be compared and statistically analysed. In Munroe-Chandler et al, quantitative data was collected from all three questionnaires which used scale-based questions to gather the data. For example, when completing the Competitive State Anxiety Inventory – 2 for Children (CSAI-2C) questionnaire, participants were asked to rate their responses to the questions using a 4-point Likert scale from 1 (not at all) to 4 (very much so). This ordinal data gives each participant a score which can be compared and analysed, increasing the reliability. However, one way research into motivation in sport lacks reliability is when there is a lack of both quantitative and qualitative data, offering correlational analysis alongside detail and insight into the reasons behind the responses in questionnaires. For example, self-efficacy was measured using the Self-efficacy Questionnaire for Soccer (SEQ-S), which only asks for a number on a scale of 1-100, without any explanation of why. This reduces the reliability of the data presented by lowering the internal validity. This is the extent to which the researchers could conclude with some certainty that the manipulation of the variables had a direct influence on the outcome of the results. This challenge to the internal validity could also be affected by issues of social desirability or demand characteristics, particularly in the Munroe-Chandler et al study, as the children were quite young and may have wanted to please. This would mean that replicability of the research findings would be unlikely if the tests were to be conducted again with other children. Another way reliability is limited is when study samples are not representative of the wider population. For example, the participants in Munroe-Chandler et al were all soccer athletes aged 11–14 years. Having such narrow sample groups (poor population validity), particularly representing only one sport, restricts the replicability of the study to other sports.*

Other appropriate responses will be credited.

(c) AO2 (10) for application to the question by suggesting advice a psychologist could give to Kevin about how to motivate the players in his daughter's football team. Examples include; working with intrinsic and extrinsic motivation, training athletes in the use of imagery, developing greater self-efficacy through the use of goal setting, positive feedback, or positive role models.

For example: *One way a psychologist could advise Kevin about how to motivate the players in his daughter's football team is by using imagery, particularly MG-M imagery. This type of imagery uses images related to mastery, self-confidence, and mental toughness such as being able to overcome adversity. This would be particularly useful for motivating individuals in sport especially when teams are not winning. This was demonstrated by Munroe-Chandler et al (2008) who found that MG-M imagery accounted for 50.6% of the total variance in the correlational data, showing success in young soccer (football) players. In practice Kevin could give the girls imagery tasks to increase their motivation for winning games. They could be asked to imagine seeing themselves as being mentally strong. Another way a psychologist could advise Kevin about how to motivate the players in his daughter's football team is by helping them develop a way of thinking which is in line with intrinsic motivation. This is their internal way of self-motivating themselves. He could give the girls group tasks where they must help other players in the team identify their individual strengths. They could then take the positive feedback from their peers and write statements about why they are good football players. Boosting self-confidence and self-efficacy in the girls' team, would result in more motivated outcomes. Kevin could also use positive reinforcement like praise to help extrinsically motivate the girls in his team. If he gives each girl some positive praise following the games they play, this may motivate them to play with more confidence in the future.*

Other appropriate responses will be credited.

END OF PAPER

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