Please check the examination details below before entering your candidate information

Candidate surname	Other names
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Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Time 2 hours

Paper reference **WPS04/01**

Psychology

International Advanced Level

PAPER 4: Clinical Psychology and Psychological Skills

Calculators may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 96.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- The list of formulae and statistical tables are printed at the start of this paper.
- Candidates may use a calculator.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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FORMULAE AND STATISTICAL TABLES

Standard deviation (sample estimate)

$$\sqrt{\left(\frac{\sum(x-\bar{x})^2}{n-1}\right)}$$

Spearman's rank correlation coefficient

$$1-\frac{6\sum d^2}{n(n^2-1)}$$

Critical values for Spearman's rank

	Level of significance for a one-tailed test				
	0.05	**0.025**	**0.01**	**0.005**	**0.0025**
	Level of significance for a two-tailed test				
N	**0.10**	**0.05**	**0.025**	**0.01**	**0.005**
5	0.900	1.000	1.000	1.000	1.000
6	0.829	0.886	0.943	1.000	1.000
7	0.714	0.786	0.893	0.929	0.964
8	0.643	0.738	0.833	0.881	0.905
9	0.600	0.700	0.783	0.833	0.867
10	0.564	0.648	0.745	0.794	0.830
11	0.536	0.618	0.709	0.755	0.800
12	0.503	0.587	0.678	0.727	0.769
13	0.484	0.560	0.648	0.703	0.747
14	0.464	0.538	0.626	0.679	0.723
15	0.446	0.521	0.604	0.654	0.700
16	0.429	0.503	0.582	0.635	0.679
17	0.414	0.485	0.566	0.615	0.662
18	0.401	0.472	0.550	0.600	0.643
19	0.391	0.460	0.535	0.584	0.628
20	0.380	0.447	0.520	0.570	0.612
21	0.370	0.435	0.508	0.556	0.599
22	0.361	0.425	0.496	0.544	0.586
23	0.353	0.415	0.486	0.532	0.573
24	0.344	0.406	0.476	0.521	0.562
25	0.337	0.398	0.466	0.511	0.551
26	0.331	0.390	0.457	0.501	0.541
27	0.324	0.382	0.448	0.491	0.531
28	0.317	0.375	0.440	0.483	0.522
29	0.312	0.368	0.433	0.475	0.513
30	0.306	0.362	0.425	0.467	0.504

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.

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Chi-squared distribution formula

$$X^2 = \sum \frac{(O-E)^2}{E} \qquad df = (r-1)(c-1)$$

Critical values for chi-squared distribution

	Level of significance for a one-tailed test					
	0.10	**0.05**	**0.025**	**0.01**	**0.005**	**0.0005**
	Level of significance for a two-tailed test					
df	**0.20**	**0.10**	**0.05**	**0.025**	**0.01**	**0.001**
1	1.64	2.71	3.84	5.02	6.64	10.83
2	3.22	4.61	5.99	7.38	9.21	13.82
3	4.64	6.25	7.82	9.35	11.35	16.27
4	5.99	7.78	9.49	11.14	13.28	18.47
5	7.29	9.24	11.07	12.83	15.09	20.52
6	8.56	10.65	12.59	14.45	16.81	22.46
7	9.80	12.02	14.07	16.01	18.48	24.32
8	11.03	13.36	15.51	17.54	20.09	26.12
9	12.24	14.68	16.92	19.02	21.67	27.88
10	13.44	15.99	18.31	20.48	23.21	29.59
11	14.63	17.28	19.68	21.92	24.73	31.26
12	15.81	18.55	21.03	23.34	26.22	32.91
13	16.99	19.81	22.36	24.74	27.69	34.53
14	18.15	21.06	23.69	26.12	29.14	36.12
15	19.31	22.31	25.00	27.49	30.58	37.70
16	20.47	23.54	26.30	28.85	32.00	39.25
17	21.62	24.77	27.59	30.19	33.41	40.79
18	22.76	25.99	28.87	31.53	34.81	42.31
19	23.90	27.20	30.14	32.85	36.19	43.82
20	25.04	28.41	31.41	34.17	37.57	45.32
21	26.17	29.62	32.67	35.48	38.93	46.80
22	27.30	30.81	33.92	36.78	40.29	48.27
23	28.43	32.01	35.17	38.08	41.64	49.73
24	29.55	33.20	36.42	39.36	42.98	51.18
25	30.68	34.38	37.65	40.65	44.31	52.62
26	31.80	35.56	38.89	41.92	45.64	54.05
27	32.91	36.74	40.11	43.20	46.96	55.48
28	34.03	37.92	41.34	44.46	48.28	56.89
29	35.14	39.09	42.56	45.72	49.59	58.30
30	36.25	40.26	43.77	46.98	50.89	59.70
40	47.27	51.81	55.76	59.34	63.69	73.40
50	58.16	63.17	67.51	71.42	76.15	86.66
60	68.97	74.40	79.08	83.30	88.38	99.61
70	79.72	85.53	90.53	95.02	100.43	112.32

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.

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Wilcoxon Signed Ranks test process

- Calculate the difference between two scores by taking one from the other
- Rank the differences giving the smallest difference Rank 1

  Note: do not rank any differences of 0 and when adding the number of scores, do not count those with a difference of 0, and ignore the signs when calculating the difference
- Add up the ranks for positive differences
- Add up the ranks for negative differences
- T is the figure that is the smallest when the ranks are totalled (may be positive or negative)
- N is the number of scores left, ignore those with 0 difference

Critical values for the Wilcoxon Signed Ranks test

	Level of significance for a one-tailed test		
	0.05	0.025	0.01
	Level of significance for a two-tailed test		
n	0.1	0.05	0.02
N=5	0	-	-
6	2	0	-
7	3	2	0
8	5	3	1
9	8	5	3
10	11	8	5
11	13	10	7
12	17	13	9

The calculated value must be equal to or less than the critical value in this table for significance to be shown.

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SECTION A

CLINICAL PSYCHOLOGY

Answer ALL questions. Write your answers in the spaces provided.

1 In your studies of clinical psychology, you will have learned about the following classic study in detail:

- Rosenhan (1973).

(a) Describe the hospitals sampled by Rosenhan (1973) in his study.

(2)

Rosenhan sampled 12 different psychiatric hospitals in 5 states on the East and West coasts of the USA. They were a varied mix: old and new, research-oriented and not, with good and poor staff-patient ratios, and one was private while the others were funded by state or federal money or by universities.

(b) Describe **one** way that qualitative data was gathered in the study by Rosenhan (1973).

(2)

Once admitted, the pseudo-patients kept detailed written notes of their observations and experiences on the ward, at first secretly and then openly when no one stopped them. They wrote down information about the ward, the other patients and how the staff behaved and responded to them.

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(c) Explain **two** ways that the findings from the study by Rosenhan (1973) could be used to improve the care of inpatients.

(4)

1 *Rosenhan found inpatients were deprived of many human rights, such as freedom of movement and privacy (staff could search belongings and toilets had no doors), causing powerlessness and depersonalisation. Staff could be trained to treat inpatients with dignity and respect, giving them privacy and choices to empower them.*

2 *Rosenhan found staff spent little time with patients, with daily contact with psychiatrists averaging under 7 minutes, and saw abuse of patients in full view of others. Hospitals could set minimum contact times and enforce care standards, such as the HCPC standards, to protect vulnerable inpatients from neglect and abuse.*

(d) State **one** improvement that could be made to the selection of confederate pseudo-patients who took part in the study by Rosenhan (1973).

(1)

Use a more representative group of pseudo-patients, with a more equal gender balance (only 3 of the 8 were women) and people from a range of ethnic backgrounds.

(Total for Question 1 = 9 marks)

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2 Alan plans to investigate whether the stress levels of individuals increase when facing situations where there is uncertainty about the outcome. He intends to recruit a volunteer sample of participants who will be told that they must be successful at an interview to take part in his research about stress.

Alan will use the interview as the situation with uncertainty. He plans to measure the stress levels of the volunteers using a heart rate monitor that they will wear during their interview.

(a) Describe **one** participant variable that Alan may need to consider in his investigation.

(2)

Alan would need to check that the participants have no underlying heart conditions, or are not taking medication that affects heart rate, because these could make their heart rate unusually high or low during the interview regardless of how stressed the uncertain interview situation actually makes them feel.

(b) Describe how Alan could recruit a volunteer sample of participants for his investigation.

(2)

Alan could place an advert on social media or a university noticeboard asking for volunteers to take part in his research about stress, explaining they would need to attend an interview, and give his contact details so that people who are interested can contact him to sign up.

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(c) Describe **one** demand characteristic that may influence the findings of Alan's investigation.

(2)

As the participants wear a heart rate monitor and know the research is about stress, they may guess the interview is the uncertain situation being tested. Knowing it is not a real interview, they may not be genuinely worried about the outcome, so their heart rates would not rise as they would in a real interview.

(d) Describe how Alan could use a control group in his investigation.

(3)

Alan could randomly allocate some volunteers to a control group who wear the same heart rate monitor for the same length of time but do not face the uncertain interview, for example sitting and having a relaxed conversation with no outcome attached. This gives a baseline measure of heart rate when people are not facing uncertainty. Alan can then compare the two groups to see whether heart rates are really higher in the uncertain interview situation, showing it is the uncertainty that increases stress.

(Total for Question 2 = 9 marks)

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3 A statistical infrequency definition can be used to define abnormality.

Explain **two** weaknesses of using a statistical infrequency definition to define abnormality.

1 *It only measures whether a behaviour is unusual across a population on a numerical level, not how it is experienced. So it gives no valid picture of the individual's circumstances, their distress or the day-to-day impact of a disorder, which is what matters for diagnosis and treatment.*

2 *It does not account for desirable traits: very high intelligence is more than 2 standard deviations above the mean, yet the person would not see themselves as abnormal. So defining abnormality only by distance from the mean is an oversimplification and could wrongly label desirable rare behaviours as abnormal.*

(Total for Question 3 = 4 marks)

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4 In your studies of clinical psychology, you will have learned about different therapies that can be used as a treatment for schizophrenia, including drug therapy and family therapy.

(a) Describe drug therapy as a treatment for schizophrenia.

(2)

Anti-psychotic drugs such as chlorpromazine block dopamine (D2) receptors, reducing the hyperactivity of the mesolimbic dopamine pathway. This lowers the effects of dopamine, which helps to reduce positive symptoms such as hallucinations and delusions. Atypical drugs such as clozapine also act on serotonin receptors.

(b) Describe family therapy as a treatment for schizophrenia.

(2)

Family therapy is a talking therapy where the patient and close family meet a therapist to discuss the experiences and needs of the patient and the family. The therapist helps the family understand the symptoms, reduce criticism and stress (high expressed emotion), so they can better support the patient.

(Total for Question 4 = 4 marks)

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5 Analyse whether cultural issues have an impact on mental health diagnosis.

(6)

Cultural issues can affect diagnosis because what is seen as normal depends on the norms and values of a culture, so clinicians from different cultures may diagnose the same symptoms differently. Cooper et al. (1972) found that New York psychiatrists were twice as likely to diagnose schizophrenia as London psychiatrists when shown the same video-taped clinical interviews, showing that cultural differences between clinicians changed the diagnosis given.

Clinicians may also view symptoms with an ethnocentric bias, judging patients from other cultures by the norms of their own culture. Littlewood and Lipsedge (1997) suggested that Black and Irish people in Britain are more likely to receive a diagnosis of serious mental disorder, which they argued is due to bias in diagnosis rather than genuine differences in mental health, so culture can lead to unfair and unreliable diagnoses.

However, classification systems such as the DSM contain clearly defined disorders with specific diagnostic criteria and symptoms, which can reduce the impact of culture. Lee (2006) found that using the DSM in Korea to diagnose ADHD was as valid as using it in the USA, so cultural differences did not affect diagnosis there.

So cultural issues can have an impact on diagnosis, especially when clinicians judge behaviour subjectively, but this impact may be reduced when standardised criteria such as the DSM are used carefully.

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(Total for Question 5 = 6 marks)

TOTAL FOR SECTION A = 32 MARKS

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SECTION B

CLINICAL PSYCHOLOGY

Answer the question. Write your answer in the space provided.

6 In your studies of clinical psychology, you will have learned about the following contemporary study in detail:

- Suzuki et al. (2014).

Evaluate the study by Suzuki et al. (2014) in terms of reliability, validity, and generalisability.

(16)

Suzuki et al. (2014) investigated the nutritional status of Japanese inpatients with schizophrenia. The sample was 333 inpatients aged 16 to 80, diagnosed with schizophrenia using the DSM-IV-TR, from nine psychiatric hospitals in Niigata Prefecture, Japan. A control group of 191 healthy volunteers was matched to the patients on age and sex. Nutritional status was operationalised using BMI and blood measures such as fasting plasma glucose (FPG), total protein and cholesterol. Patients with a physical illness or a change in their drug therapy were removed from the study. The inpatients were more likely than the controls to be underweight, and showed signs of poor nutrition such as low cholesterol, although some were overweight.

The study has good reliability because nutritional status was operationalised using objective, empirically testable measures such as BMI and FPG. These are standardised physical measures that do not depend on the researcher's interpretation, so the study could be repeated with other inpatients to check whether the findings about underweight and overweight patients are consistent. The findings are also supported by Kitabayashi et al. (2006), who also found higher rates of underweight in patients with schizophrenia, which shows the results are consistent across studies.

There is good internal validity in some respects. BMI gives an accurate and consistent

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comparison point between the schizophrenic inpatients and the general population, and the control group was matched on age and sex, so differences in nutrition are less likely to be due to these variables. Removing patients with physical illnesses or changes in drug therapy also helps to make sure the study is testing the link between schizophrenia and nutrition, not the side effects of new drugs or another illness.

However, validity may be limited in other ways. BMI is not the only indicator of good nutrition, so a patient could have a healthy BMI but still be poorly nourished, meaning the measures may not fully capture whether patients were nutritionally healthy. Also, excluding patients with other illnesses or changes in medication is not reflective of real life, where co-morbid illnesses and changes in drugs are common for people with schizophrenia, so the study lacks ecological validity. The control group were healthy volunteers rather than schizophrenic outpatients, so the study cannot show whether the nutritional problems are caused by being an inpatient (hospital diet and inactivity) or by schizophrenia itself.

In terms of generalisability, the sample of 333 inpatients with a wide age range of 16 to 80 from nine hospitals is large and fairly representative of inpatients with schizophrenia in Japanese hospitals, which increases the generalisability of the findings to this target group. However, all the hospitals were in Niigata Prefecture, so they may not represent the care and diet of patients in all areas of Japan. The sample also did not include patients beyond Japan, and diet and attitudes to food differ between cultures, so the findings may not generalise to patients with schizophrenia in other countries, or to outpatients who live in the community.

In conclusion, the study is reliable, as it used objective, replicable measures and its findings agree with other research, and it has good internal validity due to its controls. However, the controls reduce ecological validity, BMI is a limited measure of nutrition, and the findings may

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only generalise to Japanese inpatients, so the conclusions should be applied with care to other groups.

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(Total for Question 6 = 16 marks)

TOTAL FOR SECTION B = 16 MARKS

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SECTION C

PSYCHOLOGICAL SKILLS

Answer ALL questions. Write your answers in the spaces provided.

7 Rebecca is researching the influence of leading questions on the accuracy of recall using a field experiment. She asks a confederate to enter a shop and then drop his shopping on the floor to gain attention. The confederate is wearing a blue coat with grey trousers.

Rebecca then asks some shoppers to recall the colour of the clothing. She asks 10 of the shoppers a leading question of "what shade of grey was the coat?". She asks 10 other shoppers a non-leading question of "what colour was the coat?".

State a fully operationalised null hypothesis for Rebecca's field experiment.

There will be no significant difference in the accuracy of recall of the colour of the coat (blue) between shoppers asked the leading question "what shade of grey was the coat?" and shoppers asked the non-leading question "what colour was the coat?". Any difference will be due to chance.

(Total for Question 7 = 2 marks)

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8 Ronald used a correlational research method to investigate the relationship between eating chocolate and depressive symptoms. He asked 10 participants to record the total grams of chocolate they ate over seven days and also self-rate their depressive symptoms each day for the seven days.

Depressive symptoms were scored on a scale of 0 (no symptoms) to 10 (continuous symptoms). Ronald then calculated the mean score for depressive symptoms for each participant.

The data collected by Ronald is shown in **Table 1**.

Participant	Total grams of chocolate eaten in a seven-day period	Mean score for self-rated depressive symptoms
A	80	9
B	200	5
C	240	4
D	200	5
E	100	8
F	180	6
G	300	2
H	140	6
I	60	9
J	280	2

Table 1

(a) Calculate, using the data in **Table 1**, the percentage of participants who recorded eating 200 grams of chocolate or less, as a percentage of all participants.

(1)

Space for calculations

Participants eating 200 g or less: A, B, D, E, F, H, I = 7

7 ÷ 10 × 100 = 70%

Percentage 70%

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(b) Calculate, using the data in **Table 1**, the median score for the total grams of chocolate eaten by the participants in the seven-day period.

(1)

Space for calculations

In order: 60, 80, 100, 140, 180, 200, 200, 240, 280, 300

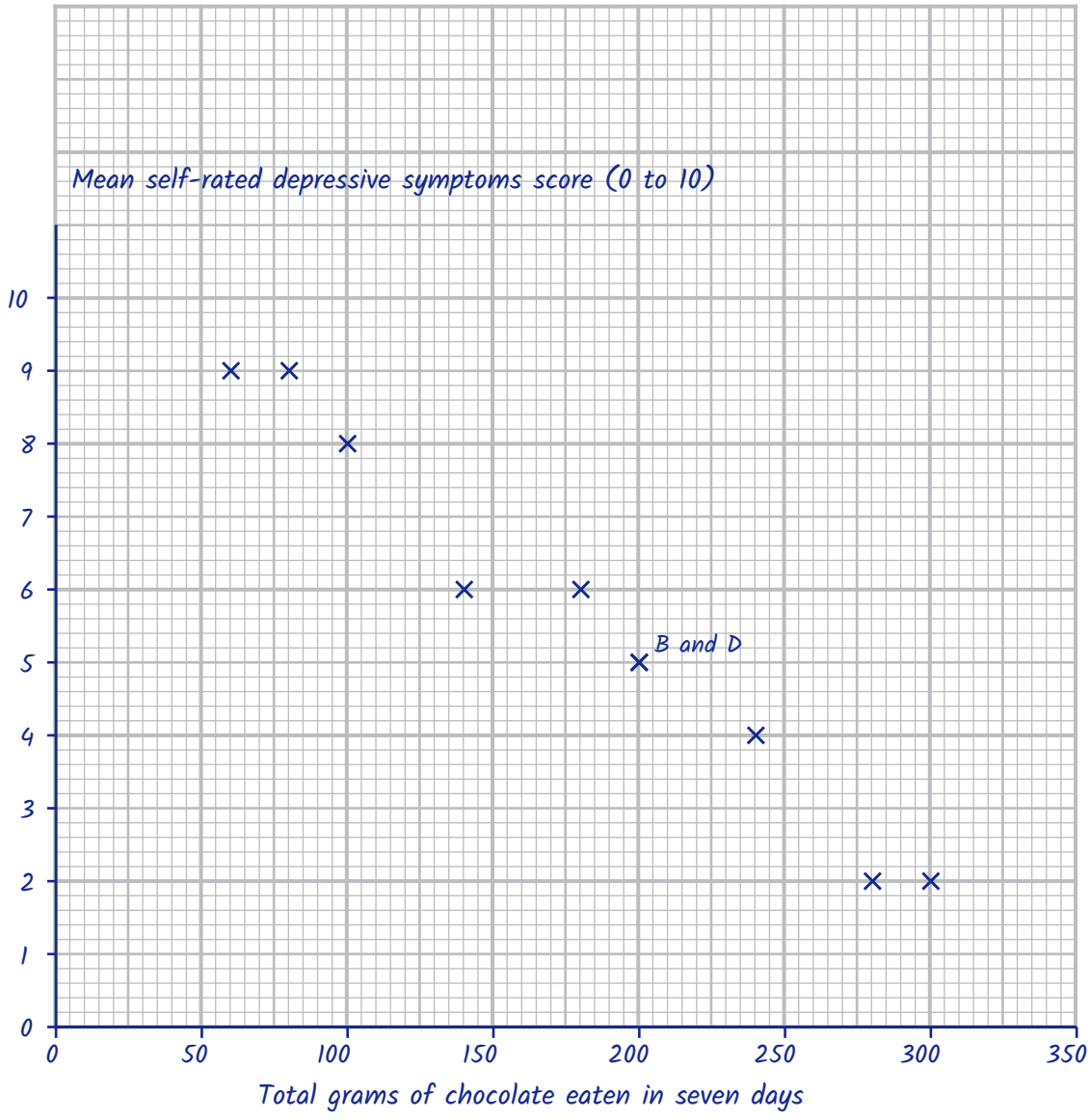
Middle values: (180 + 200) ÷ 2 = 190

Median 190 grams

(c) Draw a scatter diagram for the data shown in **Table 1**.

(3)

Title Scatter diagram of grams of chocolate eaten in 7 days and mean depressive score



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(d) Interpret the strength **and** direction of the correlation between eating chocolate and depressive symptoms shown in your scatter diagram in 8(c).

(2)

The scatter diagram shows a strong negative correlation: the points lie close to a downward line, so as the grams of chocolate eaten in seven days increase, the mean self-rated depressive symptom scores decrease (eg 60 g scored 9 but 300 g scored 2).

(Total for Question 8 = 7 marks)

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9 Bao tested the effectiveness of aromatherapy in reducing anxiety.

Aromatherapy is the use of scented oils, for example in massage, candles or bathing products, to help improve physical and emotional health.

Bao asked eight participants to record the number of anxiety attacks they had each month for two months. During the first month the participants did not use aromatherapy, during the second month the participants did use aromatherapy.

(a) Calculate the Wilcoxon Signed Ranks test for Bao's data shown in **Table 2**.

The formulae and statistical tables can be found at the front of this paper.

(2)

Participant	Month one	Month two	Difference	Ranked difference
A	24	19	5	7
B	21	18	3	5.5
C	18	16	2	4
D	20	14	6	8
E	15	16	−1	2
F	17	16	1	2
G	11	12	−1	2
H	14	17	−3	5.5

Table 2

Space for calculations

Sum of positive ranks = 7 + 5.5 + 4 + 8 + 2 = 26.5

Sum of negative ranks = 2 + 2 + 5.5 = 9.5

T = the smaller sum = 9.5 *(N = 8, no differences of 0)*

T value ..... *T = 9.5* .....

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(b) Determine, with reference to the data, whether Bao's results are significant at P≤0.01 for a one-tailed (directional) test.

The critical values table can be found at the front of this paper.

(1)

T = 9.5 is greater than the critical value of 1 (N = 8, P≤0.01 one-tailed), so the results are not significant.

(c) Explain **one** conclusion that can be made from the results of Bao's investigation.

(2)

There is no significant difference between the number of anxiety attacks recorded in month one (without aromatherapy) and month two (with aromatherapy), as T = 9.5 is not low enough. So Bao can conclude that aromatherapy is not an effective treatment for reducing anxiety.

(Total for Question 9 = 5 marks)

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10 Bonique intends to research the effectiveness of reinforcement and punishment in shaping children's behaviour. She must meet the requirements of the UNCRC (1989) and BPS Code of Ethics and Conduct (2009) in her research.

(a) Describe how the UNCRC (1989) right to participation could be met in Bonique's research.

(2)

Bonique must give the children the opportunity to make their own decisions about taking part in her study on shaping their behaviour. She should explain the study in age-appropriate language, seek each child's own views about whether they want to be involved, and respect their choice, even if parents have consented.

(b) Explain **two** ethical requirements for the protection of participants that Bonique should consider when designing her research.

(4)

1 *Bonique must consider any harm or distress that could result from the punishments she uses to shape behaviour, as she is required to minimise risks to the children's psychological well-being, physical health, personal values and dignity, for example by using only mild punishments such as losing a sticker.*

2 *Bonique should ask the children's parents whether there are any physical or emotional needs that could make a child more at risk, as she is responsible for considering any additional individual risk factors when deciding whether each child takes part, so that vulnerable children are protected from harm.*

(Total for Question 10 = 6 marks)

TOTAL FOR SECTION C = 20 MARKS

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SECTION D

Answer the question. Write your answer in the space provided.

11 One key question for society is whether treatment should be offered by airlines to passengers who have a phobia of flying.

A phobia is a clinically diagnosed overwhelming and extreme fear. Treatment for phobias is usually accessed through mental health services. Some major airports and airlines also offer treatment programmes to help passengers with fears and phobias of flying. Most of these require the passenger to pay for the treatment programme and the treatments may only be a one-day course or be offered online.

Exposure therapy is when a patient confronts the fear-inducing situation until they are able to remain calm. Rothbaum et al. (2006) conducted clinical trials of virtual reality exposure therapy and compared it to standard exposure therapy. At 6 and 12 months after treatment, they found that more than 70% of the participants from both treatment groups were still able to take flights. This suggests that a phobia of flying can be reduced using clinical therapies.

Discuss the key question of whether treatment should be offered by airlines to passengers who have a phobia of flying. You should use concepts, theories and/or research studied in learning theories and clinical psychology.

You must make reference to the context in your answer.

(8)

Learning theories suggest a phobia of flying can be learned through classical conditioning, where a neutral stimulus (a plane) is associated with fear, for example after a frightening flight with turbulence, as Watson and Rayner (1920) showed with Little Albert. The phobia is then maintained by operant conditioning, as avoiding flights removes the anxiety, which negatively reinforces the avoidance. This suggests the phobia can be unlearned through behavioural therapies, which supports airlines offering treatment.

Rothbaum et al. (2006) found that more than 70% of participants who had virtual reality or standard exposure therapy could still take flights 6 and 12 months later, so these therapies are effective in the long term. Airlines have aircraft and airports where real exposure could take place, so they are well placed to offer it, and passengers with a fear of flying would benefit by being able to travel for work or to see family.

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However, a phobia is a clinically diagnosed, overwhelming fear, and a one-day course or online programme may not be enough. Systematic desensitisation, which Capafons et al. (1998) found was effective for reducing a fear of flying, usually needs around 15 sessions where the patient learns relaxation and works slowly up a hierarchy of fears. A rushed airline course could even make the fear worse if the passenger is exposed too quickly and the anxiety is reinforced rather than extinguished.

As Rothbaum et al. (2006) found that almost 30% of participants still could not fly after treatment, airlines would need to offer several options, such as systematic desensitisation or cognitive behavioural therapy, which challenges negative thoughts like "the plane will crash" as well as behaviour. Some phobias may come from an underlying trauma, which psychoanalysis tries to uncover, and airline staff are not trained to deal with this. Also, most programmes require passengers to pay, so they are not accessible to everyone, and airlines have a financial interest in selling more tickets, which may not put the patient's welfare first.

Overall, airlines could offer treatment to passengers with a non-clinical fear of flying, as exposure-based programmes are effective, but clinically diagnosed phobias should be referred to mental health services, which can provide longer, tailored therapy.

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SECTION E

Answer the question. Write your answer in the space provided.

12 Evaluate whether gender issues influence psychological research.

(20)

Gender issues can influence psychological research in several ways. Research may be androcentric, centred on or dominated by males and a male viewpoint, or gynocentric, centred on females. Theories can show alpha bias, which exaggerates the differences between males and females, or beta bias, which ignores or minimises sex differences, for example by applying nomothetic laws from all-male samples to everyone. Samples may also be unrepresentative of one gender, and as people are socialised from infancy into gender-specific norms, values and expectations, researchers may hold unconscious gender bias.

Much classic research used single-gender samples. Milgram (1963) used only male participants until experiment 8, where women obeyed at the same rate (65%) but reported higher levels of stress and tension, showing some gender difference in the experience of obedience that the original study missed. Wong et al. (1997) used MRI scans of the amygdala in violent male criminals compared with controls, but as the research was confined to males the findings may not explain violence in females. Moscovici (1969) used only female participants, so the results may not represent male conformity to a minority. This limits the usefulness and generalisability of these findings.

Beta bias can be seen in Kohlberg's theory of moral development, which was based on interviews with boys and defined morality in terms of justice. Gilligan (1982) found women tend to focus on relationships and care when making moral decisions, so they often appeared at a lower level of moral reasoning in Kohlberg's stages. This shows that gender bias in a sample can lead to a theory that unfairly presents one gender as inferior.

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Gender bias also affects theories of attachment. Bowlby (1944) theorised that maternal deprivation could lead to juvenile delinquency, ignoring the role of fathers or male role models, and Ainsworth et al. (1978) focused on infant-mother interactions in Baltimore, excluding fathers. This gynocentric focus implies that mothers are responsible for children's emotional development, which may have reinforced social expectations that women should stay at home. Alpha bias may also occur in sampling: Becker et al. (2002) studied only girls in Fiji when researching the impact of television on eating behaviour, assuming that eating disorders do not affect boys in the same way.

Gender can also affect the research process itself. Rosenthal (1966) found male experimenters were more pleasant, friendly and encouraging with female participants than with males, so male and female participants may experience the same procedure differently, reducing validity. Evans and Davies (2000) found that school books showed males and females in gender-stereotyped ways, suggesting people learn to view the genders differently from an early age, so researchers may not be aware of their own unconscious bias.

On the other hand, some research is less likely to be influenced by gender. Neurotransmitter explanations of behaviour are based on physiological processes that are unlikely to be affected by gender, for example dopamine is likely to play a part in schizophrenia in both sexes. However, even here gender matters, as the onset of schizophrenia differs between men and women, possibly reflecting differences in D2 receptors, and Chen et al. (2019) found that low expression of the MAOA gene was related to greater happiness in women but not in men. This suggests researchers should consider gender differences even in biological research, rather than assuming findings apply equally.

The influence of gender is also changing. Modern ethical guidelines and journals encourage

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representative samples, and the APA reported that around 75% of psychology graduates in 2014 to 2015 were female, so research that was once male-dominated may now shift towards a more female perspective. This could reduce androcentric bias, but it could also create a new gynocentric bias if male viewpoints become under-represented.

In conclusion, gender issues have clearly influenced psychological research, especially classic studies with single-gender samples and theories such as Kohlberg's and Bowlby's that generalised from one gender. The extent of the influence depends on the area: social and developmental research is more affected than biological research, although gender differences exist there too. Awareness of alpha and beta bias, more representative samples and a more balanced workforce mean modern research is less influenced by gender, but unconscious bias means it can never be completely removed.

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(Total for Question 12 = 20 marks)

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