Name: _____
Score: _____ / _____

HW7-Spring 2021

Part 1: Part 1

A study where mothers were given steroids prior to delivery was used to determine if mother's BMI vary by AMA (advanced maternal age: "35 or more", "below 35") and CESEAR (delivery mode: "cesarean section", "vaginal delivery") and their interaction.

Tests of Between-Subjects Effects

Dependent Variable: BMI

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
ama	25.669	1	25.669	.696	.407
cesear	9.621	1	9.621	.261	.611
ama * cesear	222.208	1	222.208	6.023	.017
Error	2545.632	69	36.893		
Corrected Total	2844.090	72			

1

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How many subjects were in this study? ____

2

Explain your answer to question 1 above.

3

Is there a statistically significant main effect due to AMA? In other words, do mothers who are 35 or more and mothers who are below 35 have statistically significantly different BMI?

- A. Yes
- B. No

4

Explain your answer to question 3 above.

5

Is there a statistically significant main effect due to CESEAR? In other words, do mothers who had cesarean section and mothers who had vaginal delivery have statistically significantly different BMI?

- A. Yes
- B. No

6

Explain your answer to question 5 above.

7

What is the research question being asked in this specific problem when we examine whether the interaction is statistically significant?

8

Is the interaction of the two factors statistically significant?

- A. Yes
- B. No

9

Explain your answer to question 8 above.

Part 2: Part 2

A study where mothers were not given steroids prior to delivery was used to determine if the time from hospital admission to delivery (INTERVAL_HRS) vary by PARIX (number of prior pregnancies: "zero", "one", "two", "three or more") and AMA (advanced maternal age: "35 or more", "below 35") and their interaction.

Tests of Between-Subjects Effects

Dependent Variable: INTERVAL_HRS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
parix	939885.669		313295.223	6.544	.000
ama	16790.380		16790.380	.351	.554
parix * ama	131691.192		43897.064	.917	.432
Error	55391251.8	1157	47874.894		
Corrected Total	56397729.6				

Post Hoc Tests

parix

Multiple Comparisons

Dependent Variable: INTERVAL_HRS

Tukey HSD

(I) parix	(J) parix	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
0	1	-19.1455	14.87863	.572		
	2	-83.2595	20.17138	.000		
	3	-31.6779	24.12680	.555		
1	0	19.1455	14.87863		-19.1337	57.4248
	2	-64.1140	21.48132	.015		
	3	-12.5323	25.23222	.960		
2	0	83.2595	20.17138		31.3632	135.1558
	1	64.1140	21.48132		8.8475	119.3804
	3	51.5816	28.67361		-22.1889	125.3522
3	0	31.6779	24.12680		-30.3948	93.7506
	1	12.5323	25.23222		-52.3843	77.4490
	2	-51.5816	28.67361	.274		

Based on observed means.
The error term is Mean Square(Error) = 47874.894.

10

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What is df for PARIX (number of prior pregnancies)? ____

11

Explain your answer to question 10 above.

12

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How many subjects were in the study? ____

13

Explain your answer to question 12 above.

14

Does time from hospital admission to delivery (INTERVAL_HRS) vary among number of prior pregnancies (PARIX)? In other words, is the time from hospital admission to delivery significant different between mothers who had "zero", "one", "two", and "three or more" prior pregnancies?

- A. Yes
- B. No

15

Explain your answer to question 14 above.

16

Does time from hospital admission to delivery (INTERVAL_HRS) vary among advance maternal age (AMA)? In other words, is the time from hospital admission to delivery significant different between mothers who were 35 or more and those who were below 35?

- A. Yes
- B. No

17

Explain your answer to question 16 above.

18

Is there interaction between PARIX and AMA statistically significant?

- A. Yes
- B. No

19

Explain your answer to question 18 above.

20

Using the Tukey test, do any pairs of PARIX differ significantly in terms of INTERVAL_HRS? Select all that apply.

- [ ] A. None of them
- [ ] B. Between 0 and 1
- [ ] C. Between 0 and 2
- [ ] D. Between 0 and 3
- [ ] E. Between 1 and 2
- [ ] F. Between 1 and 3
- [ ] G. Between 2 and 3

Part 3: Part 3

A group of patients who visited a local clinic had their diastolic blood pressure measured three times, at the time they entered the clinic, at the time they saw the physician, and at the time they left the clinic. Use the information provided to answer the questions that follow:

Mauchly's Test of Sphericity[a]

Measure: MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.
factor1	.921	51.251	2	.000

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept
Within Subjects Design: factor1

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
factor1	Sphericity Assumed	138.945	2	69.473	2.460	.086
	Greenhouse-Geisser	138.945	1.853	74.985	2.460	.090
Error(factor1)	Sphericity Assumed	35074.388	1242	28.240		
	Greenhouse-Geisser	35074.388	1150.704	30.481		

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What is the sig we should use to determine if diastolic blood pressure vary over those three measurements for these patients? ____

Which of the following statements are true? Select all that apply.

- [ ] A. Sphericity is assumed
- [ ] B. Sphericity is not assumed
- [ ] C. There is a statistically significant difference in diastolic blood pressure over those three measurements
- [ ] D. There is no statistically significant difference in diastolic blood pressure over those three measurements

Part 4: Part 4

A group of nursing home residents participated in a study on satisfaction with care. They were asked to provide a rating of the care they received for five consecutive days. A repeated measures ANOVA with alpha = 0.05 was conducted to determine if satisfaction with care vary among those five points in time.

Mauchly's Test of Sphericity[a]

Measure: MEASURE_1

Within Subjects Effect	Mauchly's W	Approx. Chi-Square	df	Sig.
factor1	.529	32.136	9	.000190

Tests the null hypothesis that the error covariance matrix of the orthonormalized transformed dependent variables is proportional to an identity matrix.

a. Design: Intercept
Within Subjects Design: factor1

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F	Sig.
factor1	Sphericity Assumed	15.400	4	3.850	6.652	.000047
	Greenhouse-Geisser	15.400	3.029	5.085	6.652	.000280
Error(factor1)	Sphericity Assumed	120.379	208	.579		
	Greenhouse-Geisser	120.379	157.491	.764		

23

What is the null hypothesis being tested by Mauchly's test?

24

Is the null hypothesis being tested by Mauchly's test rejected or retained?

- A. Rejected
- B. Retained

25

Explain your answer to question 24 above.

26

Is there evidence to reject the null hypothesis of no change in satisfaction with care over time?

- A. No
- B. Yes

27

Explain your answer to question 26 above by clearing identifying which lines and which sig you used to come up with your conclusion.