

### Ch3 - Ex1 - Age and Memory

\*Enter numerical age in years and memory score.

DATA LIST FREE / yrs mem.

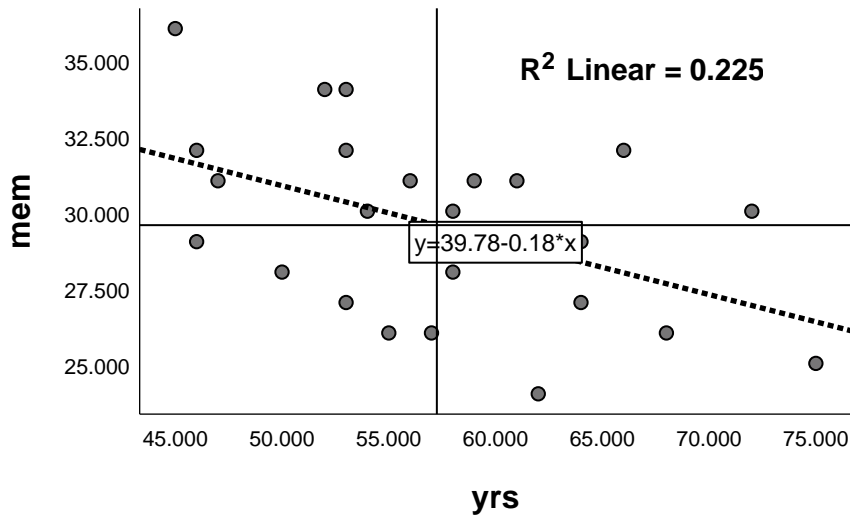
BEGIN DATA

```
50 28 45 36 55 26 57 26 59 31 64 27 52 34 72 30 75 25 53 32 53 27 47 31
56 31 46 32 54 30 58 30 66 32 46 29 61 31 53 34 62 24 68 26 64 29 58 28
END DATA.
```

DESCR yrs mem.

	N	Mean	Std. Deviation
yrs	24	57.25000	8.120024
mem	24	29.54167	3.064228

\*Graph Menu: Graphs | Legacy | Scatter/Dot | Simple Scatter | mem --> y, age -->x | Ok.  
 GRAPH /SCATTERPLOT(BIVAR)=yrs WITH mem /MISSING=LISTWISE.



\* Options | Hide Grid Lines.

\* Options | X Reference Line | Position mean age: 57.25.

\* Options | Y Reference Line | Position mean mem 29.54.

\* Elements | Fit Line at Total.

\*Calculate SSyrs SSmem SCP.

COMPUTE yrsdev = yrs - 57.25.

COMPUTE memdev = mem - 29.64.

COMPUTE yrsdev2 = yrsdev\*\*2.

COMPUTE memdev2 = memdev\*\*2.

```
COMPUTE cp = yrsdev*memdev.
DESCR yrsdev2 memdev2 cp /STAT = SUM.
```

	N	Sum
yrsdev2	24	1516.500
memdev2	24	216.190
cp	24	-271.250

```
CORRELATION yrs mem /STAT /MISS = LIST.
```

### Descriptive Statistics

	Mean	Std. Deviation	N
yrs	57.25000	8.120024	24
mem	29.54167	3.064228	24

### Correlations<sup>a</sup>

		yrs	mem
yrs	Pearson Correlation	1	-.474
	Sig. (2-tailed)		.019
mem	Pearson Correlation	-.474	1
	Sig. (2-tailed)	.019	

a. Listwise N=24

```
REGRESSION /DEPEND = mem /ENTER yrs /SAVE PRED(prd) RESI(res).
```

### Model Summary

Model	R	R Square
1	.474	.225

### ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.517	1	48.517	6.375	.019
	Residual	167.441	22	7.611		
	Total	215.958	23			

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	39.782	4.095		9.715	.000
	yrs	-.179	.071	-.474	-2.525	.019

Residuals Statistics

	Mean	Std. Deviation	N
Predicted Value	29.54167	1.452395	24
Residual	.000000	2.698155	24

```
VARIABLE LABEL prd ' res '.
LIST yrs mem prd res /CASES FROM 1 TO 5.
```

```
      yrs    mem      prd      res
50.000 28.000   30.83844  -2.83844
45.000 36.000   31.73277   4.26723
55.000 26.000   29.94411  -3.94411
57.000 26.000   29.58638  -3.58638
59.000 31.000   29.22865   1.77135
...
```

```
CORR yrs mem prd res /MISS = LIST.
```

	yrs	mem	prd
mem	-.474		
prd	-1.000	.474	
res	.000	.881	.000

\*Significance: t(r), t(b1), F.

\*simulation rho = 0, Commands omitted.

...

COMPUTE r = scp/SQRT(ssy\*ssm).

COMPUTE t = (r-0)/SQRT((1-r\*\*2)/22).

COMPUTE pnon = ABS(t) GE 2.074.

COMPUTE pdir = t LE -1.717.

COMPUTE pobs = ABS(r) GE .474.

MEAN pnon pdir pobs.

---

	pnon	pdir	pobs
Mean	.04908	.04914	.01920

---

FREQ pnon pdir pobs.

*pnon*

---

		Frequency	Percent
Valid	.000	95092	95.1
	1.000	4908	4.9
	Total	100000	100.0

---

*pdir*

---

		Frequency	Percent
Valid	.000	95086	95.1
	1.000	4914	4.9
	Total	100000	100.0

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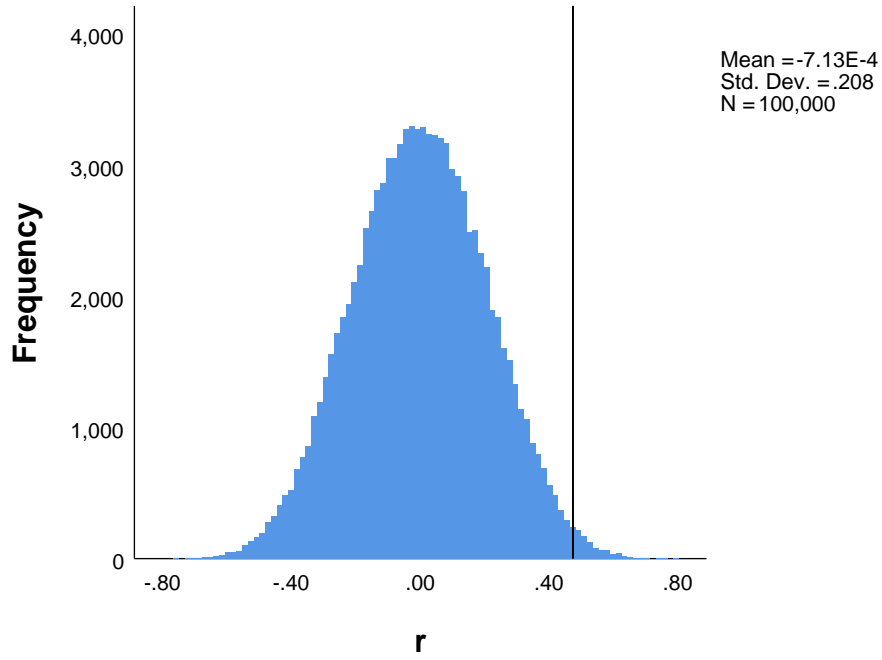
*pobs*

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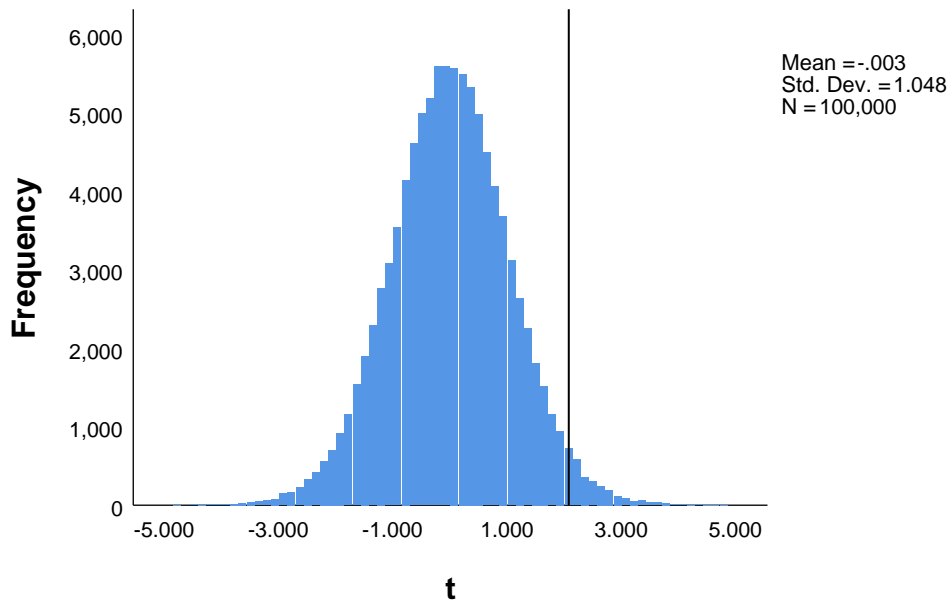
		Frequency	Percent
Valid	.000	98080	98.1
	1.000	1920	1.9
	Total	100000	100.0

---

FREQ r /FORM = NOTABLE /HIST.



FREQ t /FORM = NOTABLE /HIST.



\*Independent t-test, Ch 2-Ex1, Young (age = 1) vs Old (age = 2).

DATA LIST FREE / age mem.

BEGIN DATA

1 36 1 32 1 29 1 31 1 28 1 34 1 32 1 27 1 34 1 30 1 26 1 31

2 26 2 30 2 28 2 31 2 31 2 24 2 27 2 29 2 32 2 26 2 30 2 25

END DATA.

TTEST /GROUP = age /VARI = mem.

*Independent Samples Test*

		t-test for Equality of Means				
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
mem	Equal variances assumed	2.238	22	.036	2.583333	1.154427

GLM mem BY age.

Dependent Variable: mem

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
age	40.042	1	40.042	5.008	.036
Error	175.917	22	7.996		
Corrected Total	215.958	23			

REGRESS /DEP = mem /ENTER age /SAVE PRED(prd2) RESI(res2).

Model	R	R Square
1	.431	.185

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40.042	1	40.042	5.008	.036
	Residual	175.917	22	7.996		
	Total	215.958	23			

Model		Unstandardized Coefficients			Sig.
		B	Std. Error	t	
1	(Constant)	33.417	1.825	18.307	.000
	age	-2.583	1.154	-2.238	.036

	Mean	Std. Deviation
Predicted Value	29.54167	1.319448
Residual	.000000	2.765601

VARIABLE LABEL prd2 ' ' res2 ' '.  
 LIST age mem prd2 res2.

age	mem	prd2	res2
1.000	36.000	30.83333	5.16667
1.000	32.000	30.83333	1.16667
1.000	29.000	30.83333	-1.83333
1.000	31.000	30.83333	.16667
1.000	28.000	30.83333	-2.83333
1.000	34.000	30.83333	3.16667
1.000	32.000	30.83333	1.16667
1.000	27.000	30.83333	-3.83333
1.000	34.000	30.83333	3.16667
1.000	30.000	30.83333	-.83333
1.000	26.000	30.83333	-4.83333
1.000	31.000	30.83333	.16667
2.000	26.000	28.25000	-2.25000
2.000	30.000	28.25000	1.75000
2.000	28.000	28.25000	-.25000
2.000	31.000	28.25000	2.75000
2.000	31.000	28.25000	2.75000
2.000	24.000	28.25000	-4.25000
2.000	27.000	28.25000	-1.25000
2.000	29.000	28.25000	.75000
2.000	32.000	28.25000	3.75000
2.000	26.000	28.25000	-2.25000
2.000	30.000	28.25000	1.75000
2.000	25.000	28.25000	-3.25000

\*Correlated scores, e.g., same people young & old.  
 DATA LIST FREE / memyng memold.  
 BEGIN DATA  
 28 26 36 29 26 27 34 32 32 28 27 25 31 31 31 30 30 26 32 30 29 24 34 31  
 END DATA.

CORR memyng memold /STAT /MISS = LIST.

	Mean	Std. Deviation	N
memyng	30.83333	3.010084	12
memold	28.25000	2.632835	12

	memyng	memold
memold	.705	1

COMPUTE diff = memyng - memold.  
 TTEST /TESTVALU = 0 /VARI = diff.

	N	Mean	Std. Deviation	Std. Error Mean
diff	12	2.58333	2.193309	.633154

Test Value = 0				
	t	df	Sig. (2-tailed)	Mean Difference
diff	4.080	11	.002	2.583333

TTEST PAIRED memyng memold.

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	memyng	30.83333	12	3.010084	.868936
	memold	28.25000	12	2.632835	.760034

	N	Correlation	Sig.
Pair 1 memyng & memold	12	.705	.010

Paired Differences							
		Mean	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Pair 1	memyng - memold	2.583333	2.193309	.633154	4.080	11	.002