

2019 FEBRUARY

Name Fawad Ahmad .

ID 13784 .

Program BS D.T.

Paper Mid Term .

Subject Biostatistics .

Submitted To Sir Anwar Shamim

Department Allied Health Sciences

Fawad Ahmad

2

27 Sunday

8.00 AM
8.30
9.00
9.30
10.00
10.30
11.00
11.30
$f \log x$
1.34
9.29
7.52
12.54
8.11
3.34
0
1.75
<hr/>
43.89
4.30
5.00
5.30

$$G.M = \text{antilog} \left(\frac{\sum f \log x}{\sum f} \right)$$

$$= \text{antilog} \left(\frac{43.89}{25} \right)$$

$$= \text{antilog } 1.75$$

$$= \underline{56.23}$$

28 Monday

- Calculation of Median, Mode, Quartiles, Deciles
- Percentile, Range, M.D, Q.D, S.D, Coefficient of Variation, Skewness

Rainfall	f	C.f	class boundaries
20-24	1	1	19.5-24.5
25-29	3	4	24.5-29.5
30-34	5	9	29.5-34.5
35-39	8	17	34.5-39.5
40-44	5	22	39.5-44.5
45-49	2	24	44.5-49.5
50-54	0	24	49.5-54.5
55-59	1	25	54.5-59.5
	<u>25</u>		

$$\frac{n}{2} = \frac{25}{2} = 12.5$$

$$\text{Class} = 34.5 - 29.5$$

$$L = 34.5$$

$$\text{Median} = L + \frac{h}{f} \left(\frac{n}{2} - C \right)$$

$$\begin{aligned} \text{Median} &= 34.5 + \frac{5}{8} (12.5 - 9) \\ &= 34.5 + 0.625 \times 3.5 \end{aligned}$$

$$\text{Median} = 36.68$$

$$\text{Mode} = L + \frac{f_m - f_1}{(f_m - f_1) + (f_m - f_2)} \times h$$

$$f_m = 8 \quad \text{Mode} = 34.5 + \frac{8 - 5}{(8 - 5) + (8 - 3)} \times 5$$

$$f_1 = 5$$

$$\begin{aligned} f_2 &= 3 \\ h &= 5 \\ L &= 34.5 \end{aligned} \quad \text{Mode} = 34.5 + \frac{3}{8} \times 5 = 34.5 + 1.875 = 36.375$$

JANUARY 2019	FEBRUARY 2019	MARCH 2019	APRIL 2019	MAY 2019	JUNE 2019
M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S	M T W T F S S
1 2 3 4 5 6	1 2 3	1 2 3	1 2 3 4 5 6 7	1 2 3 4 5	1 2
7 8 9 10 11 12 13	4 5 6 7 8 9 10	4 5 6 7 8 9 10	8 9 10 11 12 13 14	6 7 8 9 10 11 12	3 4 5 6 7 8 9
14 15 16 17 18 19 20	11 12 13 14 15 16 17	11 12 13 14 15 16 17	15 16 17 18 19 20 21	13 14 15 16 17 18 19	10 11 12 13 14 15 16
21 22 23 24 25 26 27	18 19 20 21 22 23 24	18 19 20 21 22 23 24	22 23 24 25 26 27 28	20 21 22 23 24 25 26	17 18 19 20 21 22 23
28 29 30 31	25 26 27 28	25 26 27 28 29 30 31	29 30	27 28 29 30 31	24 25 26 27 28 29 30

$$Q_1 = \frac{n}{4} th = \frac{25}{4} = 6.25 \quad L = 29.5 \quad h = 5$$

$$f = 5 \quad c = 4$$

$$Q_1 = L + \frac{h}{f} \left(\frac{n}{4} - c \right)$$

$$Q_1 = 29.5 + \frac{5}{5} (6.25 - 4) = 29.5 + 2.25 = 31.75$$

$$Q_3 = \frac{3n}{4} th = 3 \times 6.25 = 18.75 \quad L = 39.5$$

$$f = 5 \quad c = 17$$

$$h = 5$$

$$Q_3 = L + \frac{h}{f} \left(\frac{3n}{4} - c \right)$$

$$= 39.5 + \frac{5}{5} (18.75 - 17) = 39.5 + 1.75 = 41.25$$

$$D_1 = \frac{n}{10} th = \frac{25}{10} = 2.5 \quad L = 24.5$$

$$f = 3 \quad c = 1$$

$$h = 5$$

$$D_1 = L + \frac{h}{f} \left(\frac{n}{10} - c \right)$$

$$= 24.5 + \frac{5}{3} (2.5 - 1) = 24.5 + 1.66 \times 1.50$$

$$= 26.9$$

$$D_{10} = \frac{10n}{10} th = \frac{10 \times 25}{10} = 25 \quad f = 1 \quad c = 24$$

$$L = 54.5 \quad h = 5$$

$$D_{10} = L + \frac{h}{f} \left(\frac{10n}{10} - c \right) = 54.5 + \frac{5}{1} (25 - 24) = 59.5$$

JANUARY 2019

(5)

30 Wednesday
030 2015 • week 5

8.00 am $P_1 = \frac{n}{100} th = \frac{25}{100} = 0.25$

8.30 Can not be find because no C.F found.

9.00
9.30 Range = $X_{max} - X_{min}$
 $= 59 - 20 = 39$

10.00 M.D

10.30

X	$ X - \bar{x} $	f	$f X - \bar{x} $
22	14.8	1	14.8
27	9.8	3	29.4
32	4.8	5	24.0
37	0.2	8	1.6
42	5.2	5	26.0
47	10.2	2	20.4
52	15.2	0	0
57	20.2	1	20.2
		<u>25</u>	<u>136.4</u>

1.00
1.30
2.00 M.D = $\frac{\sum f|X - \bar{x}|}{\sum f} = \frac{136.4}{25} = 5.45$

2.30
3.00 Q.D = $\frac{Q_3 - Q_1}{2} = \frac{41.25 - 31.75}{2}$
3.30
4.00 = 4.75

4.30

S.D

(6)

S.No	X	f	fx	fx ²
1	22	1	22	484
2	27	3	81	2187
3	32	5	160	5120
4	37	8	296	10952
5	42	5	210	8820
6	47	2	94	4418
7	52	0	0	0
8	57	1	57	3249
		25	920	35230

$$\begin{aligned}
 \text{S.D} &= \sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f}\right)^2} \\
 &= \sqrt{\frac{35230}{25} - \left(\frac{920}{25}\right)^2} \\
 &= \sqrt{1409.2 - 1354.2} \\
 &= \sqrt{55.0} = 7.41
 \end{aligned}$$

$$\begin{aligned}
 \text{Coefficient of Variation} &= \frac{\text{S.D}}{\bar{x}} \times 100 \\
 &= \frac{7.41}{36.8} \times 100 \\
 &= 20.29\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Skewness} &= \frac{\text{Mean} - \text{Mode}}{\text{S.D}} = \frac{36.8 - 36.3}{7.41} \\
 &= 0.06
 \end{aligned}$$

(7) Calculation of A.M, G.M, H.M (7)
 Ungrouped data

Saturday

S.NO	X	$\frac{1}{x}$	$\log x$
1	23	0.04	1.36
2	26	0.03	1.41
3	27	0.03	1.43
4	28	0.03	1.44
5	30	0.03	1.47
6	31	0.03	1.49
7	31	0.03	1.49
8	32	0.03	1.50
9	32	0.03	1.50
10	36	0.02	1.55
11	36	0.02	1.55
12	36	0.02	1.55
13	37	0.02	1.55
14	37	0.02	1.56
15	38	0.02	1.56
16	38	0.02	1.56
17	39	0.02	1.57
18	41	0.02	1.57
19	42	0.02	1.59
20	43	0.02	1.61
21	43	0.02	1.62
22	47	0.02	1.62
23	48	0.02	1.63
24	56	0.01	1.63
25			1.67
			1.68
			1.74
			1.74

$$A.M = \frac{\sum X}{n}$$

$$= \frac{919}{25} = 36.7$$

$$H.M = \frac{n}{\sum \frac{1}{x}}$$

$$= \frac{25}{0.37}$$

$$= 67.5$$

$$G.M = \text{anti log} \left(\frac{\sum \log x}{n} \right)$$

$$= \text{anti log} \left(\frac{38.79}{25} \right)$$

$$= \text{anti log} (1.55)$$

$$= 35.48$$

919. 0.37

38.79

FEBRUARY 2019

(8)

433

3 ^{Sunday} Calculation of Median, Mode, Quartile, Deciles and Percentiles

Median Ist we write in ascending order

23, 26, 27, 28, 30, 31, 31, 32, 32, 36, 36, 36, 37, 37,
38, 38, 39, 41, 42, 42, 43, 43, 47, 48, 56

$$\begin{aligned}\text{Median} &= \text{Size of } \left(\frac{n}{2} + 1\right)\text{th of data} \\ &= \text{Size of } \left(\frac{25}{2} + 1\right)\text{th of data} \\ &= \text{Size of } 13\text{th of data} \\ &= 37\end{aligned}$$

Mode is 36 because 36 repeated more times.

$$\begin{aligned}Q_1 &= \text{Size of } \left(\frac{n}{4} + 1\right)\text{th of data} \\ &= \text{Size of } \left(\frac{25}{4} + 1\right)\text{th of data} \\ &= \text{Size of } 7\text{th of data} \\ &= 31\end{aligned}$$

$$\begin{aligned}\text{Size of } Q_3 &= \text{Size of } \left(\frac{3n}{4} + 1\right)\text{th of data} \\ &= \text{Size of } (18 + 1)\text{th of data} \\ &= \text{Size of } 19\text{th of data} \\ &= 42\end{aligned}$$

(9)

4

Monday

035•330• week 6

Anniv Day* (Nelson-N.Z.) Lunar New Year Eve (China, Rep)

8.00 am

$$D_1 = \text{Size of } \left(\frac{n}{10} + 1 \right) \text{th of data}$$

8.30

$$= \text{Size of 3rd of data}$$

9.00

$$= 27$$

9.30

10.00

10.30

11.00

$$D_5 = \text{Size of } \left(\frac{5n}{10} + 1 \right) \text{th of data}$$

11.30

$$= \text{Size of 15th of data}$$

12.00 noon

$$= 38$$

12.30

1.00

Percentile cannot be find.

1.30

Calculation of M.D and S.D

S.No	X	$ X - \bar{X} $	X^2
1	23	13	529
2	26	10	676
3	27	9	729
4	28	8	784
5	30	6	900
6	31	5	961
7	31	5	961
8	32	4	1024
9	32	4	1024
10	36	0	1296
11	36	0	1296
12	36	0	1296
13	37	1	1369
14	37	1	1369
15	38	2	1444
16	38	2	1444
17	39	3	1521
18	41	5	1681
19	42	6	1764
20	42	6	1764
21	43	7	1849
22	43	7	1849
23	47	11	2209
24	48	12	2304
25	56	20	3136
	919	147	35331

$$M.D = \frac{\sum |x - \bar{x}|}{n}$$

$$= \frac{147}{25} = 5.88$$

$$S.D = \sqrt{\frac{\sum x^2}{n} - \left(\frac{\sum x}{n}\right)^2}$$

$$= \sqrt{\frac{35331}{25} - (36)^2}$$

$$= \sqrt{1413 - 1296}$$

$$= \sqrt{117}$$

$$S.D = 10.8$$

$$C.V = \frac{S.D}{\bar{x}} \times 100\% = \frac{10.8}{36} \times 100\%$$

$$= 30.0\%$$

$$\text{Range} = X_{\max} - X_{\min}$$

$$= 56 - 23 = 33$$

$$\text{Skewness} = \frac{\text{Mean} - \text{Mode}}{S.D} = \frac{36 - 36}{10.8}$$

$$= 0$$

AUGUST 2019							SEPTEMBER 2019							OCTOBER 2019							NOVEMBER 2019							DECEMBER 2019						
T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W
1	2	3	4				1	2	3	4				1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30	31					29	30	31					29	30	31					29	30	31					29	30	31				

9

Saturday

08:00-12:00

Q = (2) :-

(A) Ans: (i) Sensus deals with the behaviour

(ii) aggregate with large group of data

(iii) Sensus deals with the variability of data.

(iii) Sensus deals with those characteristics which can be describe Numerically

(iv) Sensus deals with no. of several random cases.

(v) Sensus laws and or valid on the average on the long run.

(vi) Sensus assist effective planning in any field of inquiry.

(vii) every person used Sensus data from their own purpose.

Monday

042-1271-1000 7

12

(c1) The census conducted in 2011
less people show their own
religion.

The question was invalidate
because less people to show
their religion.

If we reduce the standard
error in and this census
because these problem might
be overcome.

The census conducted on a
limited to ~~domain~~ so
that is why the potential
problem in incorporating additional
data which is held by
government agencies.

15

Ans

	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Total	Avg	S.D.	S.E.	S.D.
Fresh veg	259	289	268	317	317	268	259	1906	265	104.5	31.4	31.4
Fruit	31	45	69	105	120	120	120	720	120	31.7	31.7	31.7
Rice	367	377	269	296	296	296	296	2127	296	104.5	31.4	31.4
Wheat flour	79	114	109	255	255	255	255	1368	255	104.5	31.4	31.4
2d grain	2	2	6	27	27	27	27	138	27	104.5	31.4	31.4
Root veg	7	11	16	25	25	25	25	134	25	104.5	31.4	31.4
Milk	20	61	89	97	97	97	97	558	97	104.5	31.4	31.4
Fish	25	28	31	44	44	44	44	255	44	104.5	31.4	31.4
Milk	2	3	25	37	37	37	37	175	37	104.5	31.4	31.4

Q. 1

(6)

(a) r is calculated in the table.
eg. The column denoted by x to y respectively. For men and women.

(b) From the Table we see that with the passage of time and consumption of Commodities ^{what} Milk, ^{But} Flours, ^{and} vegetables increase for both men and women e.g. From class to C₁ to C₂.

(c) From the Table it is clear that the value and consumption decreases to across the C₄ to C₁ for Fish or Fruit for both groups men and women decrease of Rice across the C₄ to C₂ for both men and women.

(d) The standard deviation of Fresh vegetable for men is greater than from women.

therefore Fresh vegetable is consumption for women is better than men.

(f) compare the value of S.D for men with women the smaller value with show the better Result.