

(4)

	Frequency	%	Cumulative %
2	3	7.14	7.14
3	0	0	7.14
4	1	0.0 2.38	9.52
5	2	0.0 4.76	14.28
6	2	4.76	19.04
7	5	11.91	30.95
8	9	21.43	52.38
9	5	11.91	64.29
10	1	2.38	66.67
11	8	19.05	85.72
12	4	9.52	95.24
13	2	4.76	100

$$\text{Mode} = 9$$

Median

$$\frac{5+9}{2}$$

$$= 7$$

The mode and the median differ in the ordinal variable as they are in nominal data.

Median in ordinal data is 7 while in nominal data is 8.71 whereas the mode of the ordinal data is 9 while nominal data was 7.31

(2) In the data involving years of schooling, mean, mode and median are symmetrical as they are used to found at around the central point of the data.

On the data involving child mortality, the three measures of Central tendency are negatively skewed and thus they lie close to the smallest value than they are to the largest value.

(3)

Mean and Median are calculated from values of a factor.

It is therefore not possible to calculate them in a column involving the regions.

mode

7.21

median

Arrange in ascending order:-

2.04, 2.41, 2.42, 2.73, 5.33, 5.6, 6.35, 6.99, 7.21, 7.21, 7.36, 7.43,
7.51, 8.03, 8.15, 8.38, 8.47, 8.54, 8.6, 8.64, 8.78, 9.01, 9.26, 9.59,
9.7, 10.69, 11.03, 11.04, 11.08, 11.16, 11.46, 11.76, 11.83, 11.88, 12.4, 12.46,
12.93, 12.96, 13.32, 13.75, 14.73

$$\frac{1}{2} \left(\frac{n}{2} + \frac{n}{2} + 1 \right)$$

$$= \frac{1}{2} (8.98 + 9.01)$$

$$= \underline{8.995}$$

1. (a) Region of the world.

- Mode = Europe.

Mean and Median can't be calculated.

(b) Year of schooling

(i) Mean

$$\begin{aligned} & 9.28 + 12.96 + 8.15 + 11.01 + 6.99 + 8.31 + 11.03 + 11.46 + 11.35 \\ & + 6.35 + 2.41 + 11.04 + 13.32 + 5.60 + 5.53 + 11.51 + 12.46 + 9.81 + \\ & 12.40 + 2.04 + 9.59 + 8.54 + 11.16 + 11.83 + 4.93 + 9.01 + 11.76 + \\ & 8.03 + 8.64 + 10.69 + 2.40 + 8.18 + 11.80 + 9.48 + 13.15 + 12.93 + 18.39 \\ & + 18.60 \end{aligned}$$

$$\begin{aligned} \frac{\Sigma X}{\Sigma F} &= \frac{\text{Total years of school}}{\text{Number of countries}} = \frac{395.45}{43} \\ &= 8.939286 \end{aligned}$$

Median

Arrange the data in ascending order

2.2, 3.4, 3.7, 4.1, 4.2, 4.3, 4.4, 4.6, 4.7, 4.9, 4.9, 5, 5, 5.4, 6.1, 6.4,
6.8, 7, 7.2, 7.3, 7.7, 7.9, 10.1, 11.1, 12.2, 13.3, 14.9, 15, 15.3, 16.5, 16.7, 17.4,
19.1, 23.2, 23.7, 25, 33.1, 43.1, 44.2, 63, 71.9, 87.9, 132.7

$$\frac{1}{2} \left[\frac{n}{2} + \frac{n+1}{2} \right]$$

$$\frac{1}{2} [21 + 22]$$

$$\frac{1}{2} [43]$$

$$= \frac{1}{2} (43)$$

$$= 21.5$$

3 Child mortality rate per 1000 births
Mean:

$$= \frac{\text{Total rates}}{\text{Number of countries}}$$

$$= \frac{824.5}{43}$$

$$= 20.4$$

Mode

$$11.9$$