

Bringing data to life

-statistical approaches to global issues

14-16 years: Session 3



Pie charts and histograms



Women's Collective Action research



Women's Collective Action research



Pie charts

Look at the marital status pie charts for Mali and Ethiopia in front of you. Consider the following questions.

How many people in Ethiopia are married?

Are there more married women in Ethiopia?

How many are widowed?



Examining Pie charts

Look at the marital status pie charts for Mali and Ethiopia again.

- One of these countries has a life expectancy of 58.
The other has a life expectancy of 62.

Which life expectancy do you think belongs to each country?

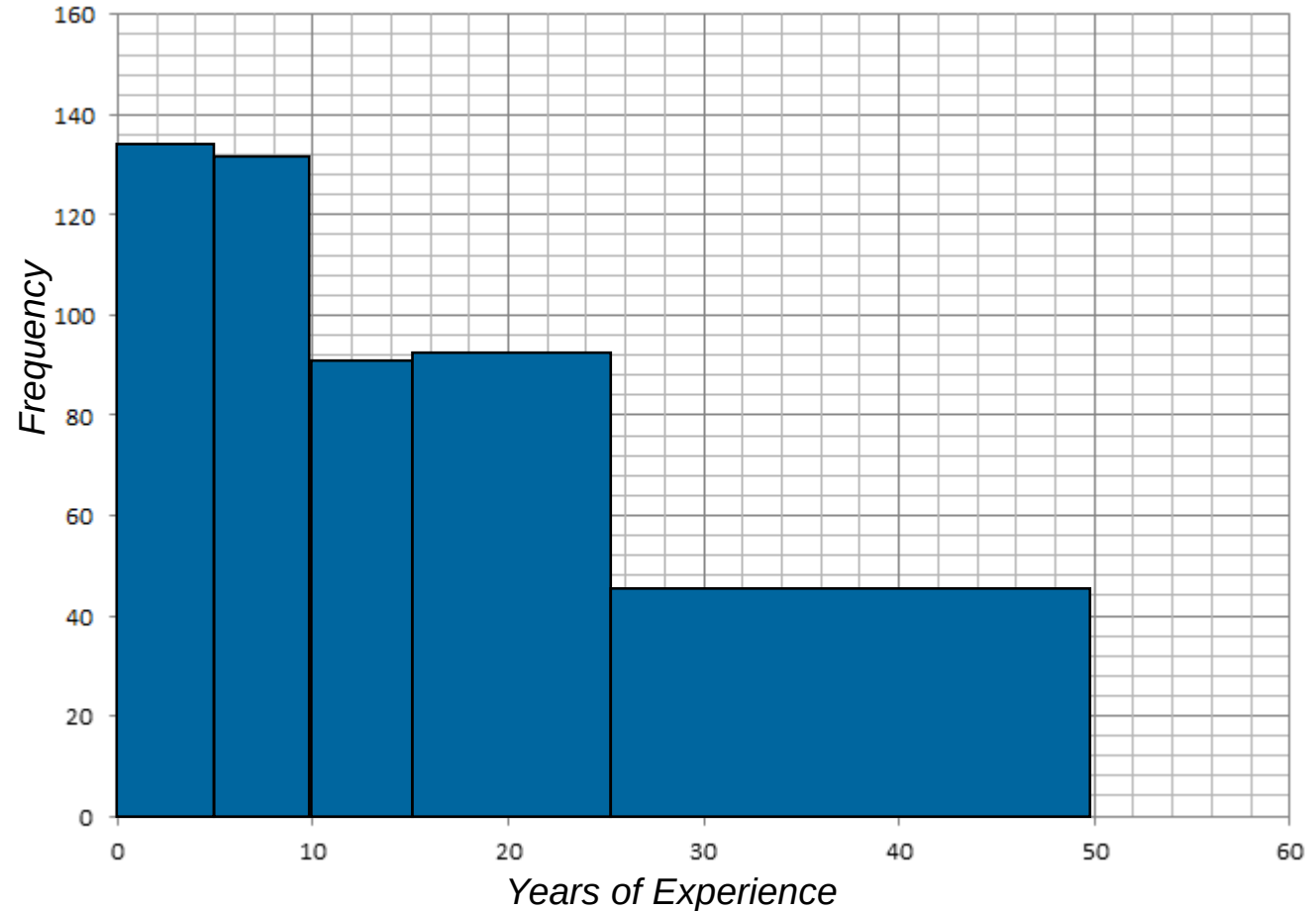
What issues are there with comparing the data from the pie-chart with national statistics?



Histograms

Here is a table and histogram showing the years of experience each woman (non-member) has producing honey in Ethiopia

Years of Experience	Frequency
0 ≤ x < 5	136
5 ≤ x < 10	132
10 ≤ x < 15	93
15 ≤ x < 25	94
25 ≤ x < 50	42



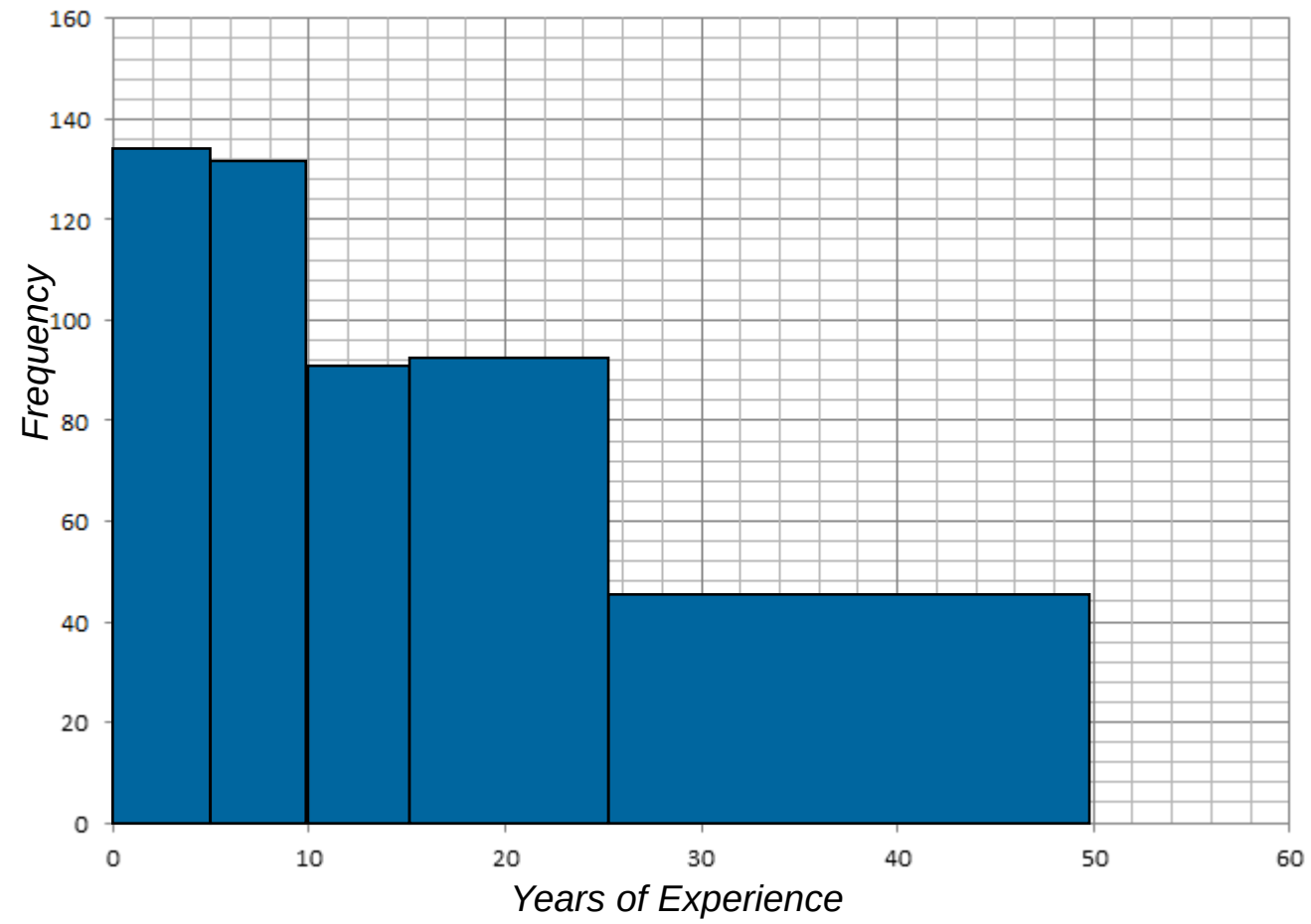
The bars have been plotted so that the widths match the class intervals but there is a problem! The last class interval now looks as though it should have the most people in it because it has the biggest area!



Histograms

In fact, only 42 women out of the 497 asked had over 25 years experience producing honey in Ethiopia.

Years of Experience	Frequency
0 ≤ x < 5	136
5 ≤ x < 10	132
10 ≤ x < 15	93
15 ≤ x < 25	94
25 ≤ x < 50	42



We need to change the bars so that it is the area of the bar that represents the number of people in it.

Histograms

To do this, we need to create another column called 'Frequency Density'. Frequency Density is the Frequency divided by the class width.

Years of Experience	Frequency	Class Width	Frequency Density (F ÷ CW)
0 ≤ x < 5	136		
5 ≤ x < 10	132		
10 ≤ x < 15	93		
15 ≤ x < 25	94		
25 ≤ x < 50	42		
	136		
	132		
	93		
	94		
	42		

Class width is the difference between the top and the bottom of the class interval. For example, 0 ≤ x < 5 has a difference of 5 so this is our class width.

Histograms

To do this, we need to create another column called 'Frequency Density'. Frequency Density is the Frequency divided by the class width.

Years of Experience	Frequency	Class Width	Frequency Density (F ÷ CW)
0 ≤ x < 5	136	5	
5 ≤ x < 10	132	5	
10 ≤ x < 15	93	5	
15 ≤ x < 25	94	10	
25 ≤ x < 50	42	25	

Class width is the difference between the top and the bottom of the class interval. For example, 0 ≤ x < 5 has a difference of 5 so this is our class width.



Histograms

To do this, we need to create another column called 'Frequency Density'. Frequency Density is the Frequency divided by the class width.

Years of Experience	Frequency	Class Width	Frequency Density (F ÷ CW)
0 ≤ x < 5	136	5	27.2
5 ≤ x < 10	132	5	26.4
10 ≤ x < 15	93	5	18.6
15 ≤ x < 25	94	10	9.4
25 ≤ x < 50	42	25	1.68

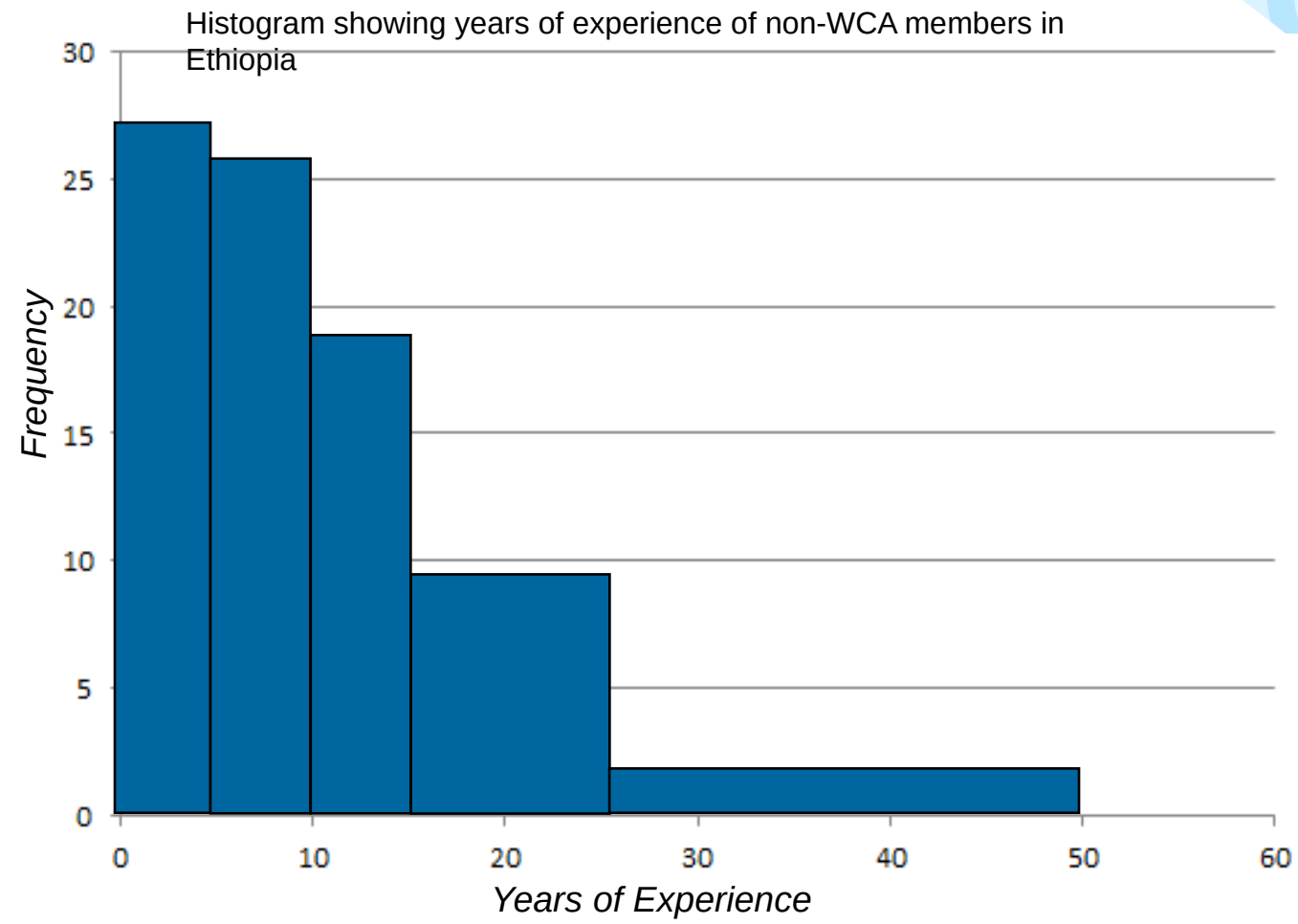
Class width is the difference between the top and the bottom of the class interval. For example, 0 ≤ x < 5 has a difference of 5 so this is our class width.



Histograms

The histogram is 'right skewed' towards the lower end. This means most of the data is found closer to zero than fifty.

Years of Experience	Freq.	Class Width	Frequency Density
0 ≤ x < 5	136	5	27.2
5 ≤ x < 10	132	5	26.4
10 ≤ x < 15	93	5	18.6
15 ≤ x < 25	94	10	9.4
25 ≤ x < 50	42	25	1.68



When we plot our bars, we see that they much better represent the frequencies of the years of experience the women have making honey!

Histograms

Use your worksheet to create your own histogram. Instead of the WCA non-members, you will be looking at the WCA members.

Which group would you expect to have more experience? Why?



Histograms

This is the table you have on your worksheet. It shows the years of experience each woman (WCA member) has producing honey in Ethiopia.

Years of Experience				Frequency	Class Width	Frequency Density
Years of Experience	Frequency	Class Width	Frequency Density	92		
$0 \leq x < 5$	92					
$5 \leq x < 10$	66					
$10 \leq x < 15$	38					
$15 \leq x < 25$	40					
$25 \leq x < 50$	7					
Years of Experience	Frequency	Class Width	Frequency Density	66		
$0 \leq x < 5$	92					
$5 \leq x < 10$	66					
$10 \leq x < 15$	38					
$15 \leq x < 25$	40					
$25 \leq x < 50$	7					
Years of Experience	Frequency	Class Width	Frequency Density	38		
$0 \leq x < 5$	92					
$5 \leq x < 10$	66					
$10 \leq x < 15$	38					
$15 \leq x < 25$	40					
$25 \leq x < 50$	7					
Years of Experience	Frequency	Class Width	Frequency Density	40		
$0 \leq x < 5$	92					
$5 \leq x < 10$	66					
$10 \leq x < 15$	38					
$15 \leq x < 25$	40					
$25 \leq x < 50$	7					
Years of Experience	Frequency	Class Width	Frequency Density	7		
$0 \leq x < 5$	92					
$5 \leq x < 10$	66					
$10 \leq x < 15$	38					
$15 \leq x < 25$	40					
$25 \leq x < 50$	7					



Histograms

This is the table you have on your worksheet. It shows the years of experience each woman (WCA member) has producing honey in Ethiopia. Your table should look like this

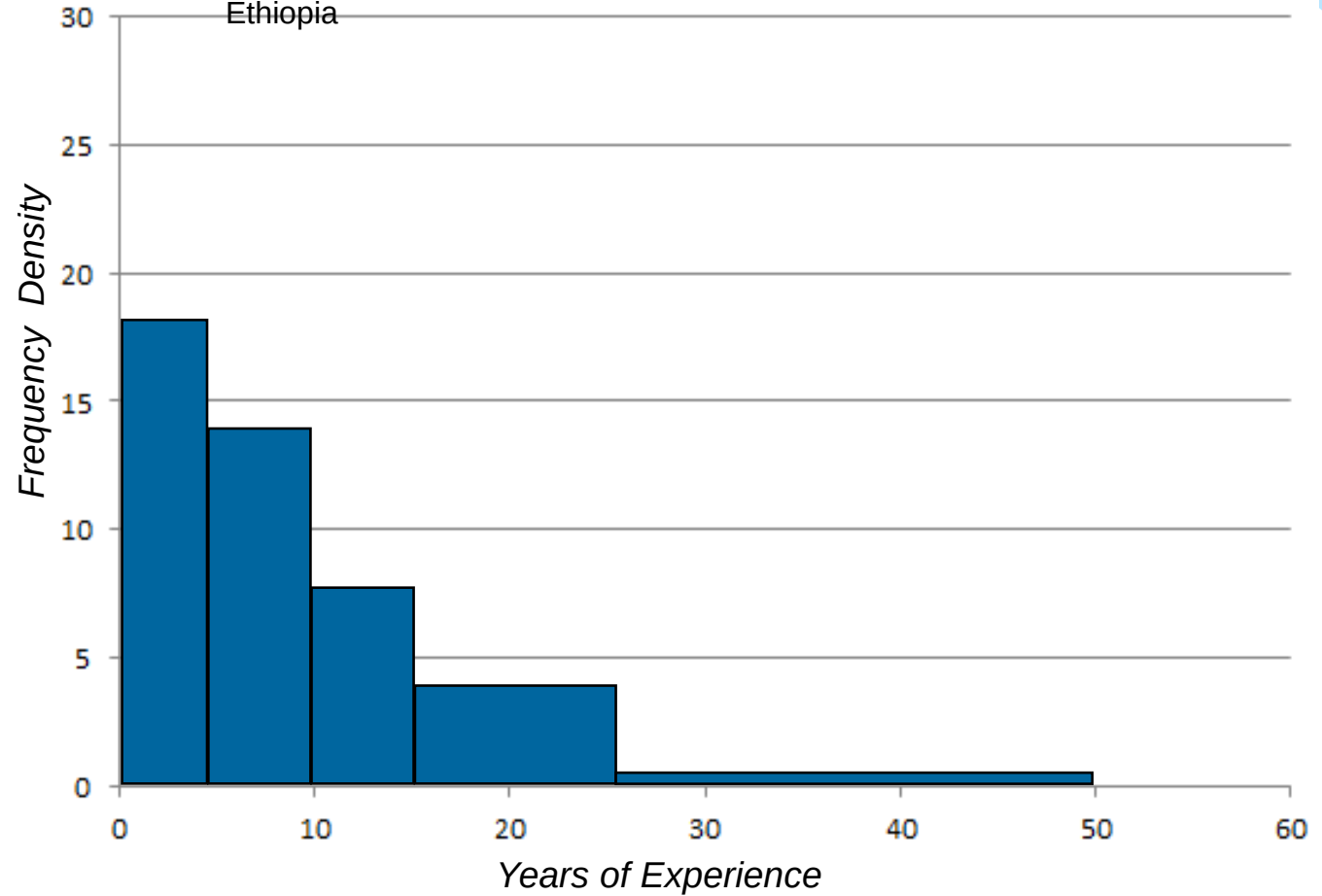
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Histograms

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Histogram showing years of experience of WCA members in Ethiopia

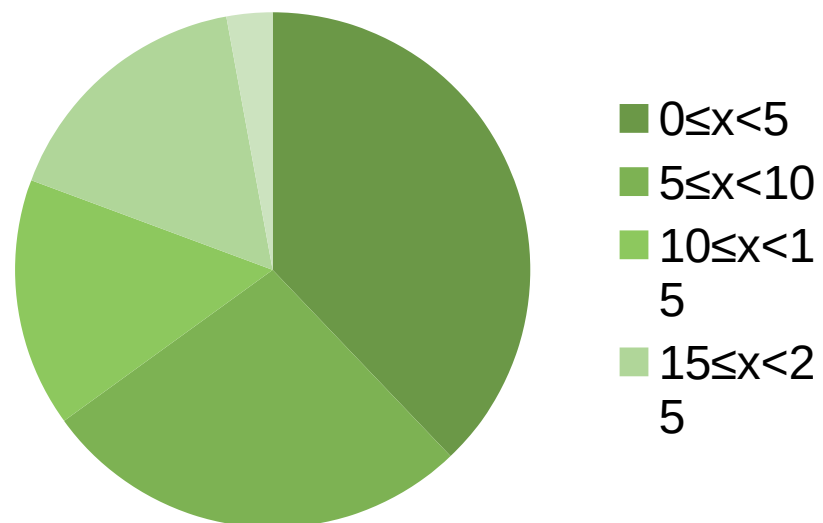


Histograms

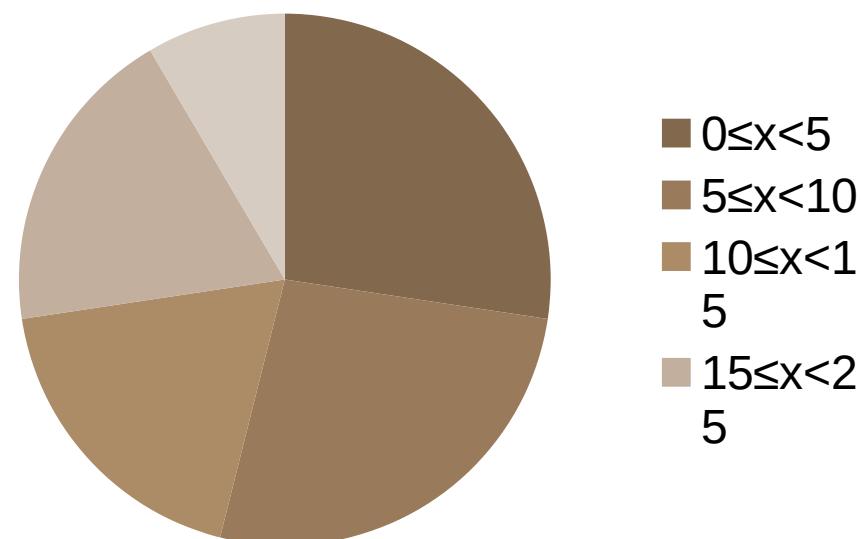
- What comparisons can you make between the histogram we created as an example (years of experience of non-members in Ethiopia) and the histogram you have drawn on your worksheet (years of experience of WCA members)?
- Both of the histograms show a ‘right skewed’ distribution, meaning the data is mostly on the left.
- Why is it difficult to make comparisons?



Years of Experience - WCA Ethiopia



Years of Experience - Non WCA Ethiopia



Summary Activity

- In front of you are some cards that need grouping together. There is no set number that go together.
- Match up as many as you can!



Women's Collective Action groups

