Group **E**

Cancer Patients Data Set

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Agenda

- What is our data talking about?
- Cleaning Data
- Descriptive Analysis
- Crosstab

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The **Data Base**

The database shows a questionnaire made to patients who have cancer. The database computes age, gender, symptoms and external factors the patient was submitted on a scale of 1 to 9. For example, factors such as smoking, alcoholism and air pollution. And some symptoms like coughing up blood and chest pain.

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Cleaning Data

Here we can see what variables were having missing data and how much missing values in each column. We also can see five columns had no missing data.

```
: Coughing of Blood            13
  Alcohol use                  12
  Shortness of Breath          10
  Air Pollution                 9
  Obesity                       8
  Chest Pain                    8
  Smoking                       7
  Dust Allergy                  7
  Swallowing Difficulty         7
  Gender                        6
  OccuPational Hazards          6
  Genetic Risk                  6
  Wheezing                      6
  Fatigue                       5
  Weight Loss                   5
  Balanced Diet                 5
  Clubbing of Finger Nails      4
  Passive Smoker                4
  Age                           3
  Frequent Cold                 3
  Dry Cough                     0
  Snoring                       0
  Patient Id                    0
  chronic Lung Disease          0
  Level                         0
```

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Cleaning Data

In the data base, most of the variables are categoricals and ordinals (scale from 1 to 9). And we could find some missing data and some wrong values (values that exceeds 9 or values with decimals, such as 3.5).

Therefore, for the wrong values, we deleted the values that exceeds 9, so they could be missing values. For the values with decimals, we rounded the values. If it was 3.7, we rounded to 4.

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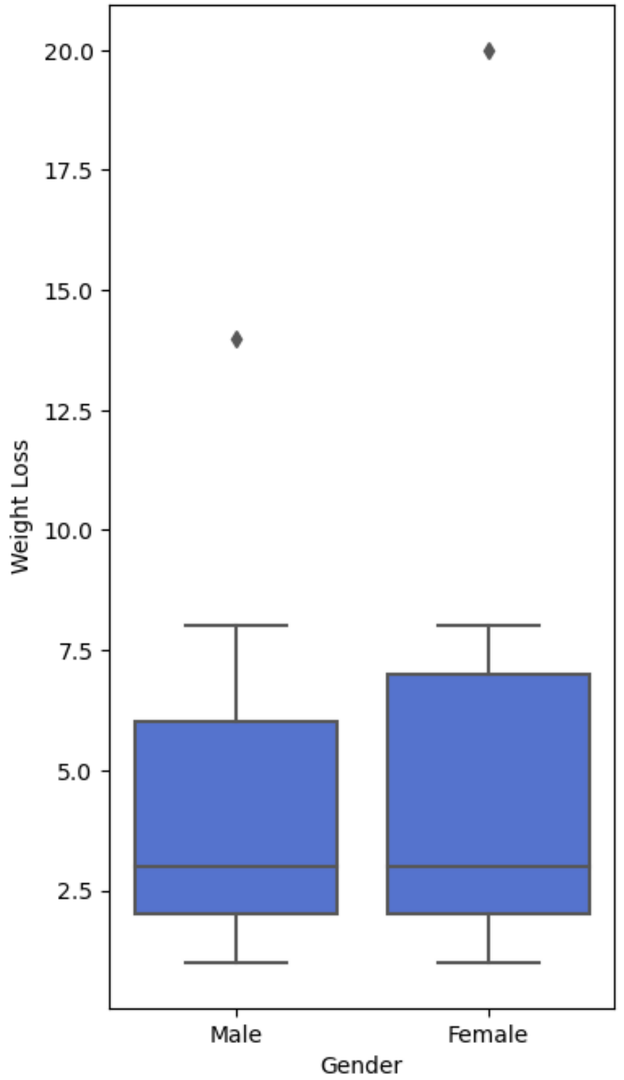
Cleaning Data

Here is an example of the values exceeding 9 using the boxplot.



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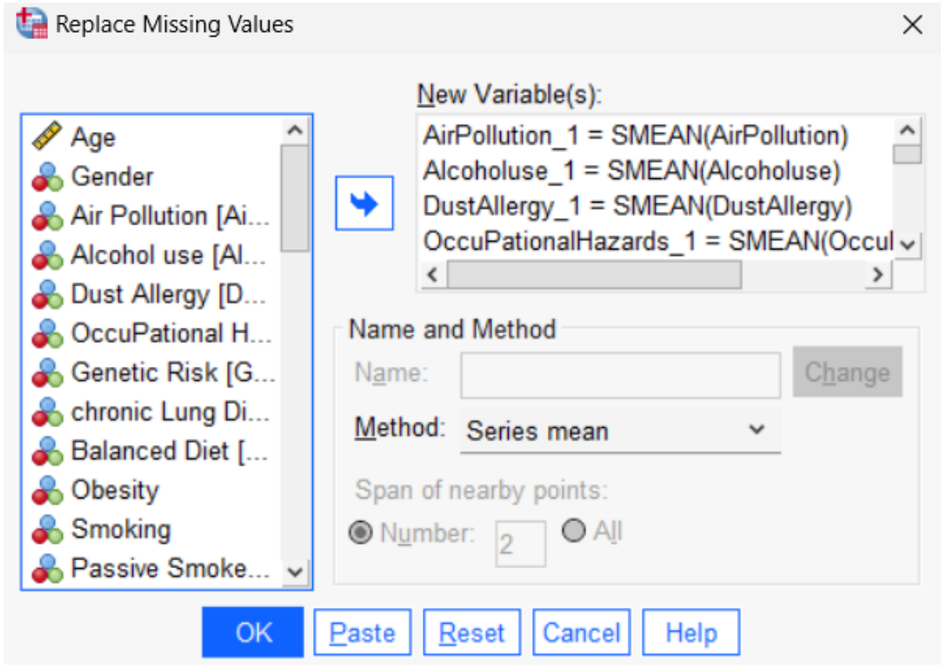
Cleaning Data

After that, we replaced the missing values using the mean substitution method.

Transform -> Replace Missing Values -> Select all variables except the ID -> Method: Series Mean



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Cleaning Data

After replacing the missing data with mean substitution, we compared the new values with the old ones using the Paired-sample-t-test to guarantee the new and old values were alike.

Pair 14	Weight Loss	3,86[a]	1000	2,200	,070
	SMEAN(WeightLoss)	3,862[a]	1000	2,2004	,0696
Pair 15	Shortness of Breath	4,24[a]	1000	2,277	,072
	SMEAN (ShortnessofBreath)	4,238[a]	1000	2,2774	,0720
Pair 16	Wheezing	3,79[a]	1000	2,033	,064
	SMEAN(Wheezing)	3,789[a]	1000	2,0329	,0643
Pair 17	Swallowing Difficulty	3,75[a]	1000	2,264	,072
	SMEAN (SwallowingDifficulty)	3,751[a]	1000	2,2637	,0716
Pair 18	Clubbing of Finger Nails	3,93[a]	1000	2,386	,075
	SMEAN (ClubbingofFingerNails)	3,929[a]	1000	2,3857	,0754
Pair 19	Frequent Cold	3,54[a]	1000	1,828	,058
	SMEAN(FrequentCold)	3,537[a]	1000	1,8281	,0578
Pair 20	Dry Cough	3,85[a]	1000	2,039	,064
	SMEAN(DryCough)	3,853[a]	1000	2,0390	,0645
Pair 21	Snoring	2,93[a]	1000	1,475	,047
	SMEAN(Snoring)	2,926[a]	1000	1,4747	,0466
Pair 22	Age	37,19[a]	1000	11,986	,379
	SMEAN(Age)	37,186[a]	1000	11,9859	,3790

a. The correlation and t cannot be computed because the standard error of the difference is 0.

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Descriptive **Analysis**

(Frequency, central tendecy, dispersion, position)

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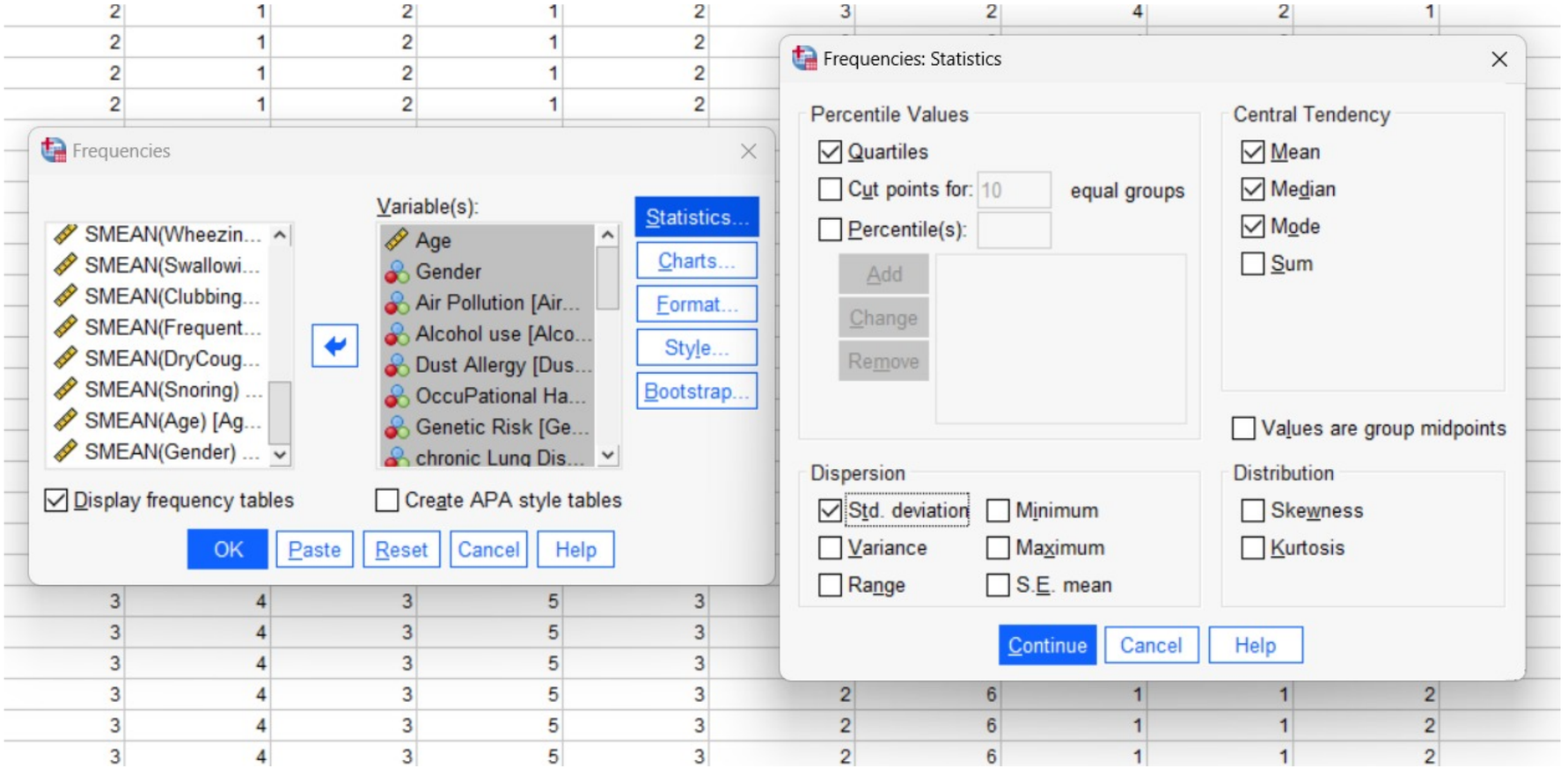
Descriptive **Analysis**

Analyze -> Descriptive Statistics -> Frequencies



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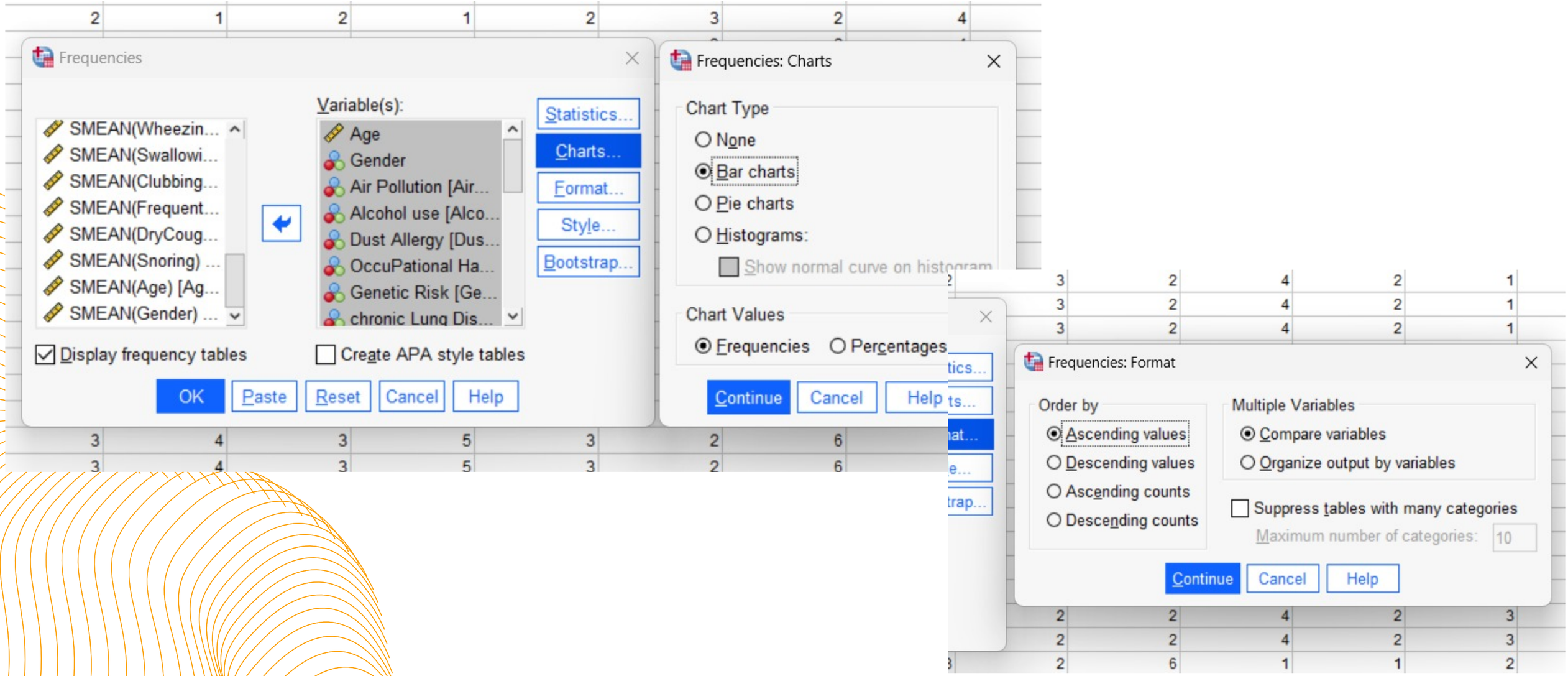
Descriptive **Analysis**



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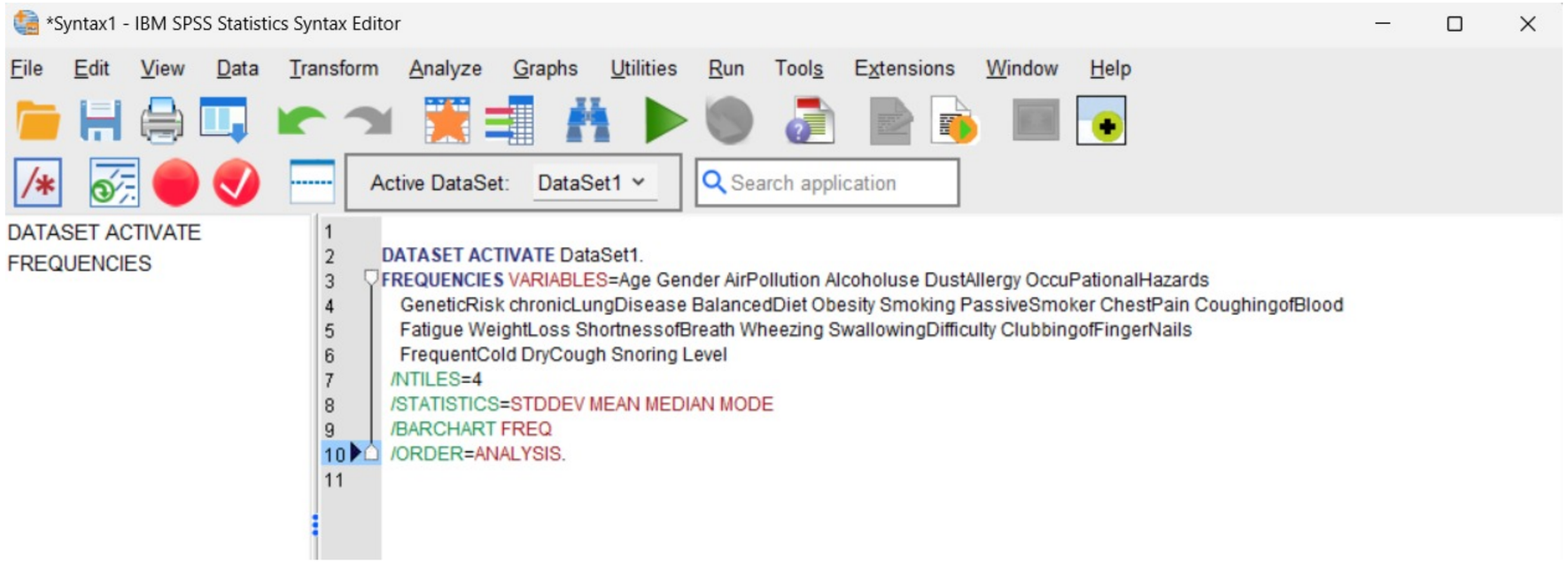
Descriptive **Analysis**



Syntax

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Descriptive **Analysis**

Statistics

		Air Pollution	Alcohol use	Dust Allergy	OccuPational Hazards	Genetic Risk	chronic Lung Disease	Balanced Diet	Obesity	Smoking	Passive Smoker
N	Valid	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		3,84	4,58	5,16	4,84	4,59	4,38	4,49	4,48	3,95	4,19
Median		3,00	5,00	6,00	5,00	5,00	4,00	4,00	4,00	3,00	4,00
Mode		6	2	7	7	7	6	7	7	2	2
Std. Deviation		2,023	2,604	1,975	2,101	2,120	1,849	2,130	2,120	2,486	2,306
Percentiles	25	2,00	2,00	4,00	3,00	3,00	3,00	2,00	3,00	2,00	2,00
	50	3,00	5,00	6,00	5,00	5,00	4,00	4,00	4,00	3,00	4,00
	75	6,00	7,00	7,00	7,00	7,00	6,00	7,00	7,00	7,00	7,00

a. Multiple modes exishown

Statistics

		Coughing of Blood	Fatigue	Weight Loss	Shortness of Breath	Wheezing	Swallowing Difficulty	Clubbing of Finger Nails	Frequent Cold	Dry Cough	Snoring
N	Valid	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		4,87	3,86	3,86	4,24	3,79	3,75	3,93	3,54	3,85	2,93
Median		4,00	3,00	3,00	4,00	4,00	4,00	4,00	3,00	4,00	3,00
Mode		7	2[a]	2	2	2	1	2	3	2	2
Std. Deviation		2,411	2,243	2,200	2,277	2,033	2,264	2,386	1,828	2,039	1,475
Percentiles	25	3,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00	2,00
	50	4,00	3,00	3,00	4,00	4,00	4,00	4,00	3,00	4,00	3,00
	75	7,00	5,00	6,00	6,00	5,00	5,00	5,00	5,00	6,00	4,00

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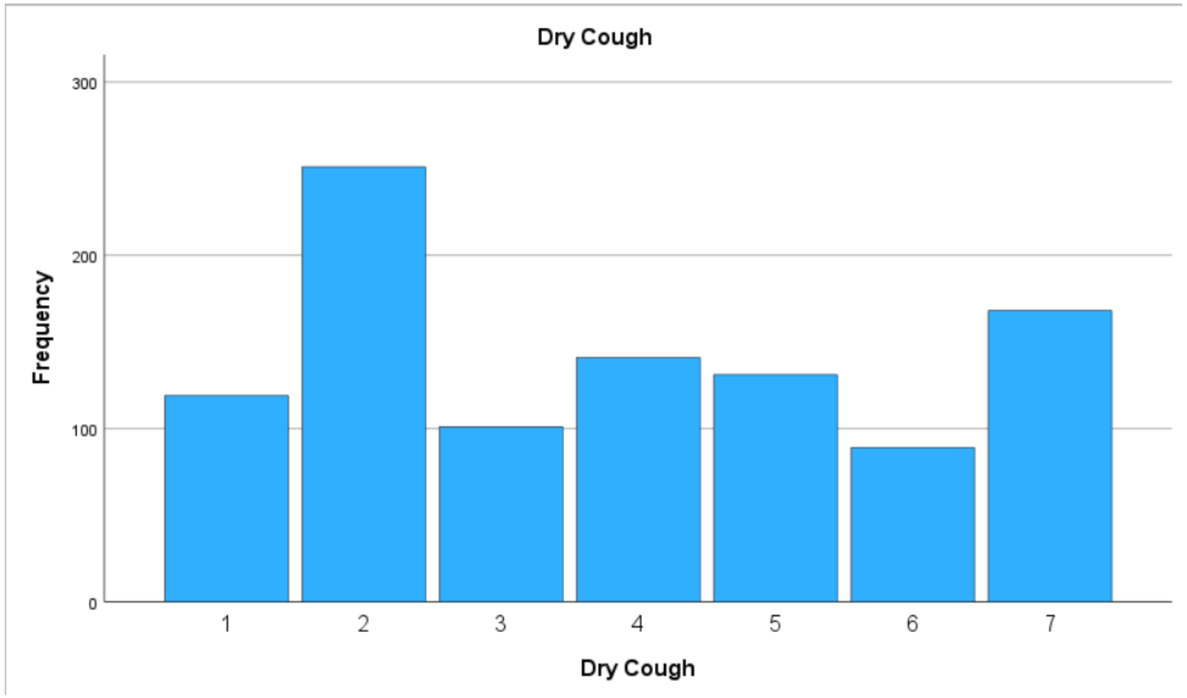
Descriptive **Analysis**

Dry Cough

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	119	11,9	11,9	11,9
	2	251	25,1	25,1	37,0
	3	101	10,1	10,1	47,1
	4	141	14,1	14,1	61,2
	5	131	13,1	13,1	74,3
	6	89	8,9	8,9	83,2
	7	168	16,8	16,8	100,0
	Total	1000	100,0	100,0	



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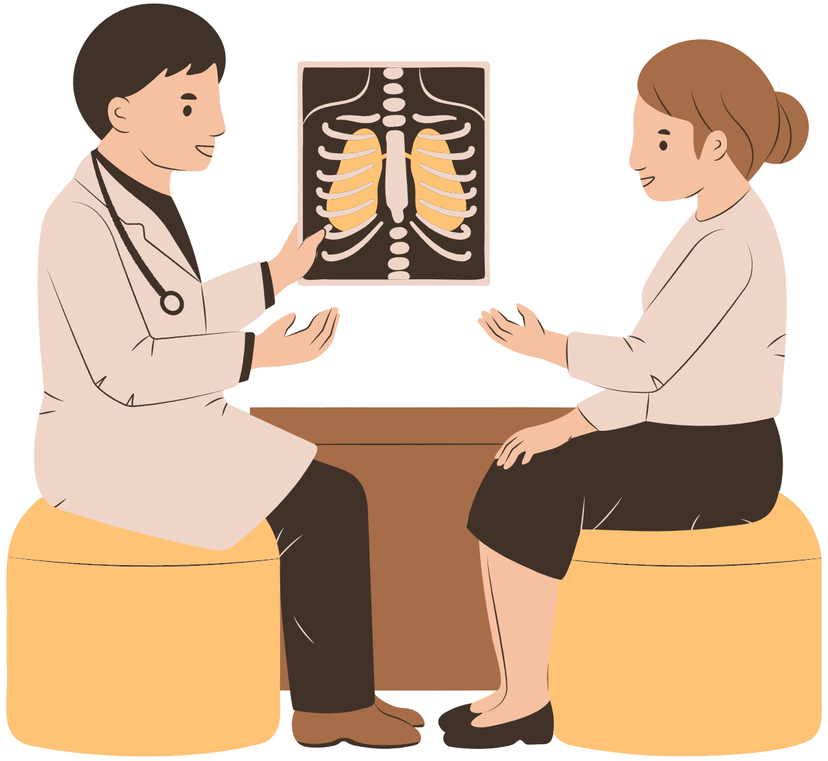
Crosstab



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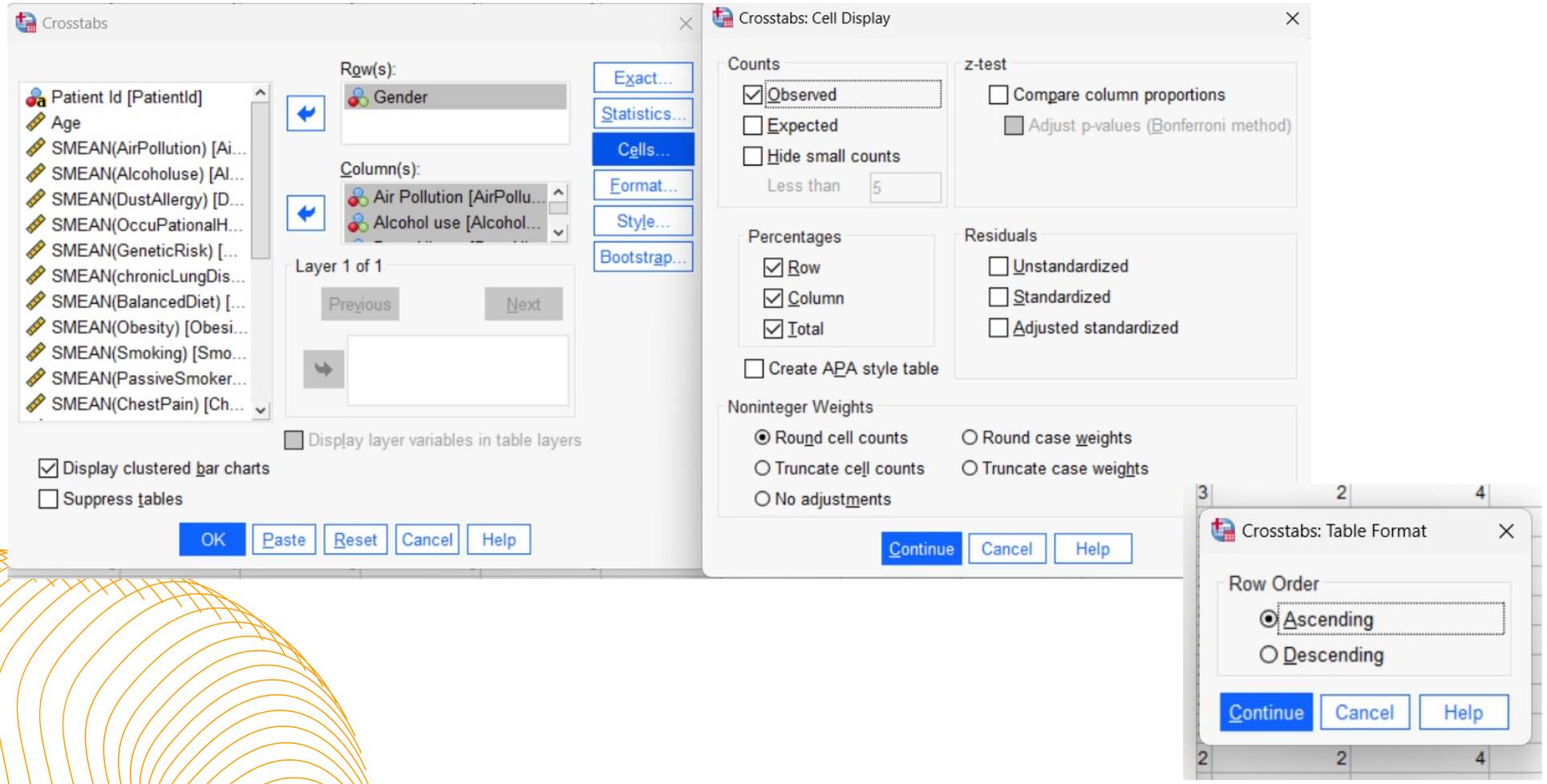
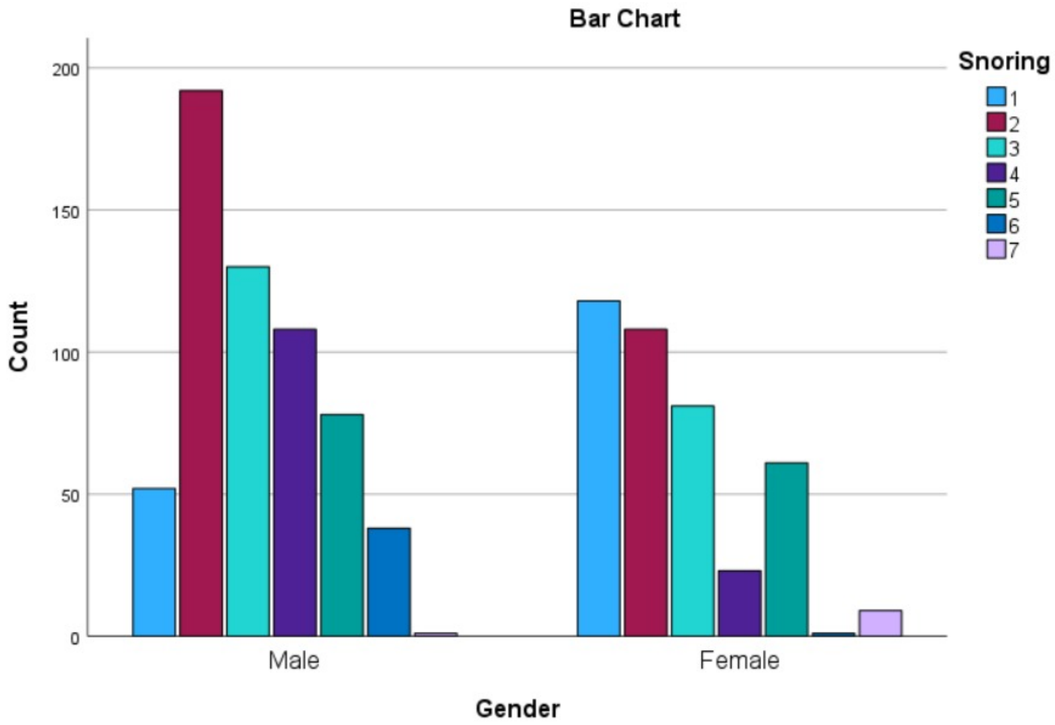
Crosstab



Crosstab

Gender * Snoring Crosstabulation

			Snoring							
			1	2	3	4	5	6	7	Total
Gender	Male	Count	52	192	130	108	78	38	1	599
		% within Gender	8,7%	32,1%	21,7%	18,0%	13,0%	6,3%	0,2%	100,0%
		% within Snoring	30,6%	64,0%	61,6%	82,4%	56,1%	97,4%	10,0%	59,9%
		% of Total	5,2%	19,2%	13,0%	10,8%	7,8%	3,8%	0,1%	59,9%
	Female	Count	118	108	81	23	61	1	9	401
		% within Gender	29,4%	26,9%	20,2%	5,7%	15,2%	0,2%	2,2%	100,0%
		% within Snoring	69,4%	36,0%	38,4%	17,6%	43,9%	2,6%	90,0%	40,1%
		% of Total	11,8%	10,8%	8,1%	2,3%	6,1%	0,1%	0,9%	40,1%
Total		Count	170	300	211	131	139	39	10	1000
		% within Gender	17,0%	30,0%	21,1%	13,1%	13,9%	3,9%	1,0%	100,0%
		% within Snoring	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
		% of Total	17,0%	30,0%	21,1%	13,1%	13,9%	3,9%	1,0%	100,0%



Thank you**!**