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Total Percent Analysis

Total Percent Analysis is based on comparing the percentage ratio of each variable with respect to our prediction result i.e., a Yes/No of the heart disease data. It is a simple and straightforward comparison but it helped us identify the weightage of each question in determining the prediction of heart disease in an individual.

Kidney Disease

Heart Disea..	Kidney Disease Yes	No
Yes	3,455	23,918
No	8,324	284,098

Heart Disea..	Kidney Disease Yes	No
Yes	29.33%	7.77%
No	70.67%	92.23%

Approximately 29% of the individuals with kidney disease reported heart diseases ranking it at one of the top most risks for heart disease.

Skin Cancer

Heart Disea..	Skin Cancer Yes ⤓	No
Yes	4,980	22,393
No	24,839	267,583

Heart Disea..	Skin Cancer Yes	No
Yes	16.70%	7.72%
No	83.30%	92.28%

Brain Stroke

Heart Disea..	Stroke Yes	No
Yes	4,389	22,984
No	7,680	284,742

Heart Disea..	Stroke Yes	No
Yes	36.37%	7.47%
No	63.63%	92.53%

Brain stroke has the highest risk to heart disease amongst all other variables in this data.

Age

Heart Disease	18-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80 or older
Yes	130	133	226	296	486	744	1,383	2,202	3,327	4,101	4,847	4,049	5,449
No	20,934	16,822	18,527	20,254	20,520	21,047	23,999	27,555	30,359	30,050	26,218	17,433	18,704

Heart Disease						Age Category							
	18-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80 or older
Yes	0.62%	0.78%	1.21%	1.44%	2.31%	3.41%	5.45%	7.40%	9.88%	12.01%	15.60%	18.85%	22.56%
No	99.38%	99.22%	98.79%	98.56%	97.69%	96.59%	94.55%	92.60%	90.12%	87.99%	84.40%	81.15%	77.44%

The risk of heart disease is directly proportional to the increase in age.

Gender

Heart Disea..	Sex	
	Female	Male
Yes	11,234	16,139
No	156,571	135,851

Heart Disea..	Sex	
	Female	Male
Yes	6.69%	10.62%
No	93.31%	89.38%

Males are at higher risk of heart diseases than females and more thorough research is needed to answer what causes the difference.

General Health

Heart Disea..	Gen Health				
	Poor	Fair	Good	Very good	Excellent
Yes	3,850	7,084	9,558	5,381	1,500
No	7,439	27,593	83,571	108,477	65,342

Heart Disea..	Gen Health				
	Poor	Fair	Good	Very good	Excellent
Yes	34.10%	20.43%	10.26%	4.73%	2.24%
No	65.90%	79.57%	89.74%	95.27%	97.76%

The risk of heart disease is directly proportional to the state of general health.

Smoking

Heart Disea..	Smoking Yes	No
Yes	16,037	11,336
No	115,871	176,551

Heart Disea..	Smoking Yes	No
Yes	12.16%	6.03%
No	87.84%	93.97%

In comparison to Asthma smoking seems to have a slightly higher risk by 0.5% but needs more data to prove this.

Asthma

Heart Disea..	Asthma Yes	No
Yes	4,933	22,440
No	37,939	254,483

Heart Disea..	Asthma Yes	No
Yes	11.51%	8.10%
No	88.49%	91.90%

Alcohol

Heart Disea..	Alcohol Drinking Yes	No
Yes	1,141	26,232
No	20,636	271,786

Heart Disea..	Alcohol Drinking Yes	No
Yes	5.24%	8.80%
No	94.76%	91.20%

Apparently alcohol doesn't affect the heart in comparison to other variables, and in fact is one of the lowest risk factors.

Diabetes

Heart Disease	Diabetic			
	Yes	Yes (during p..	No, borde rline dia..	No
Yes	8,957	108	789	17,519
No	31,845	2,451	5,992	252,134

Heart Disease	Diabetic			
	Yes	Yes (during p..	No, borde rline dia..	No
Yes	21.95%	4.22%	11.64%	6.50%
No	78.05%	95.78%	88.36%	93.50%

Yes: 22%

Borderline: 11.64%

During Pregnancy: 4.2%

Diabetes seems to play an important role in maintaining a healthy heart.

Difficulty Walking

Heart Disea..	Diff Walking	
	Yes	No
Yes	10,028	17,345
No	34,382	258,040

Heart Disea..	Diff Walking	
	Yes	No
Yes	22.58%	6.30%
No	77.42%	93.70%

Physical activity seems to play a more important role in the outcome of heart diseases in comparison to mental health, but we have to understand the weightage of the survey questions and importance before establishing this firmly.

Physically Active

Heart Disea..	Physical Activity	
	Yes	No
Yes	17,489	9,884
No	230,468	61,954

Heart Disea..	Physical Activity	
	Yes	No
Yes	7.05%	13.76%
No	92.95%	86.24%

Physical Health 30-day scale

This data determines the number of days an individual is having physical health issues in the last 30 days.

Hear..	0	1	2	3	4	5	6	7	8	9	Physical Health 10	11
Yes	14,422	605	1,169	843	494	896	173	465	120	37	838	9
No	212,167	9,884	13,711	7,774	3,974	6,710	1,097	4,164	804	143	4,615	76

Hear..	0	1	2	3	4	5	6	7	8	9	Physical Health 10	11
Yes	6.36%	5.77%	7.86%	9.78%	11.06%	11.78%	13.62%	10.05%	12.99%	20.56%	15.37%	10.59%
No	93.64%	94.23%	92.14%	90.22%	88.94%	88.22%	86.38%	89.95%	87.01%	79.44%	84.63%	89.41%

12	13	14	15	16	Physical Health 17	18	19	20	21	22	23
104	10	312	930	21	21	33	9	641	99	15	12
501	81	2,581	4,082	114	89	134	26	2,575	527	74	34

12	13	14	15	16	Physical Health 17	18	19	20	21	22	23
17.19%	10.99%	10.78%	18.56%	15.56%	19.09%	19.76%	25.71%	19.93%	15.81%	16.85%	26.09%
82.81%	89.01%	89.22%	81.44%	84.44%	80.91%	80.24%	74.29%	80.07%	84.19%	83.15%	73.91%

24	25	26	27	28	29	30
15	254	12	28	108	59	4,619
52	910	54	96	338	145	14,890

24	25	26	27	28	29	30
22.39%	21.82%	18.18%	22.58%	24.22%	28.92%	23.68%
77.61%	78.18%	81.82%	77.42%	75.78%	71.08%	76.32%

No issues/ 0 days : 6.36%

Consistent issues/ 30 days : 23.68%

Mental Health 30-day scale

Heart Disea..	0	1	2	3	4	5	6	7	8	9	Mental Health 10
Yes	18,215	613	1,041	658	323	882	112	318	71	19	805
No	187,186	8,678	15,454	9,808	5,056	13,267	1,398	5,210	1,023	184	9,708

Heart Disea..	0	1	2	3	4	5	6	7	8	9	Mental Health 10	11
Yes	8.87%	6.60%	6.31%	6.29%	6.00%	6.23%	7.42%	5.75%	6.49%	9.36%	7.66%	13.25%
No	91.13%	93.40%	93.69%	93.71%	94.00%	93.77%	92.58%	94.25%	93.51%	90.64%	92.34%	86.75%

11	12	13	14	Mental Health 15	16	17	18	19	20
11	60	7	147	907	15	11	16	2	483
72	697	103	1,901	8,989	137	117	195	19	4,948

11	12	13	14	Mental Health 15	16	17	18	19	20
13.25%	7.93%	6.36%	7.18%	9.17%	9.87%	8.59%	7.58%	9.52%	8.89%
86.75%	92.07%	93.64%	92.82%	90.83%	90.13%	91.41%	92.42%	90.48%	91.11%

21	22	23	24	25	26	27	28	29	30
42	9	5	8	198	4	9	56	39	2,287
310	89	63	59	1,756	55	117	459	278	15,086

21	22	23	24	25	26	27	28	29	30
11.93%	9.18%	7.35%	11.94%	10.13%	6.78%	7.14%	10.87%	12.30%	13.16%
88.07%	90.82%	92.65%	88.06%	89.87%	93.22%	92.86%	89.13%	87.70%	86.84%

No issues/ 0 days : 8.87%

Consistent issues/ 30 days : 13.16%

Unlike the 30-day physical health scale which shows a clear sign of high co-relation between physical health and heart risk, mental health on the other hand seems to be low in comparison.

Sleep duration

Heart Disea..	1	2	3	4	5	6	7	8	9	10	Sleep Time 11	12
Yes	60	128	347	1,180	2,030	5,427	6,325	8,358	1,696	1,165	73	416
No	491	660	1,645	6,570	17,154	61,294	91,426	89,244	14,345	6,631	342	1,789

Heart Disea..	1	2	3	4	5	6	7	8	9	10	Sleep Time 11	12
Yes	10.89%	16.24%	17.42%	15.23%	10.58%	8.13%	6.47%	8.56%	10.57%	14.94%	17.59%	18.87%
No	89.11%	83.76%	82.58%	84.77%	89.42%	91.87%	93.53%	91.44%	89.43%	85.06%	82.41%	81.13%

Sleep Time 13	14	15	16	17	18	19	20	21	22	23	24
18	43	24	34	2	21	1	16		3		6
79	200	165	202	19	81	2	48	2	6	3	24

Sleep Time 13	14	15	16	17	18	19	20	21	22	23	24
18.56%	17.70%	12.70%	14.41%	9.52%	20.59%	33.33%	25.00%		33.33%		20.00%
81.44%	82.30%	87.30%	85.59%	90.48%	79.41%	66.67%	75.00%	100.00%	66.67%	100.00%	80.00%

6 hours: 8.13%

7 hours: 6.47%

8 hours: 8.56%

Anything outside the 6-8 hours of sleep shows a higher risk in comparison, and 7 hours of sleep seems to be the best outcome for a healthy heart maintenance.