Cancer and Mental Health

By Priya and Nick

What our Project is about

1. We wanted to see the mental health of those who had been diagnosed and survived a childhood cancer
2. We obtained our data from the British Journal of Cancer
    a. Was a single excel sheet with very untidy data
3. Hope to learn more about the mental health of those who suffered from a childhood cancer

Our Data

1. Data was difficult to work with
   a. Had empty rows and columns
   b. The Columns names were too long
   c. Some data took up multiple rows and columns/merged columns
   d. Values contained percentages and parentheses

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1		ROLE EMOTIONAL SCALE						SOCIAL FUNCTIONING SCALE				MENTAL HEALTH SCALE								
2		Cut down on the amount of time you spent on work or other activities?		Accomplished less than you would like?		Did work or other activities less carefully than usual?		Has your physical health or emotional problems interfered with your normal social activities?		Has your health limited your social activities?		Have you been a very nervous person?		Have you felt so down in the dumps that nothing could cheer you up?		Have you felt calm and peaceful?		Have you felt downhearted and blue?		Have yo
3		(Question 5a)		(Question 5b)		(Question 5c)		(Question 6)		(Question 9j)		(Question 9b)		(Question 9c)		(Question 9d)		(Question 9f)		
4	Characteristic	No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Reporting Dysfunction/No.		No. Rep
5		Responders (%)		Responders (%)		Responders (%)		Responders (%)		Responders (%)		Responders (%)		Responders (%)		Responders (%)		Responders (%)		
6	Sex																			
7	Male	610/5222 (11.7)		903/5221 (17.3)		670/5212 (12.9)		796/5300 (15.0)		847/5249 (16.1)		1328/5271 (25.2)		1018/5279 (19.3)		2000/5278 (37.9)		1530/5258 (29.1)		1
8	Female	846/4999 (16.9)		1155/4996 (23.1)		934/4974 (18.8)		1022/5081 (20.1)		1075/5026 (21.4)		1626/5065 (32.1)		1425/5064 (28.1)		2527/5062 (49.9)		1975/5050 (39.1)		1
9	Diagnosis																			
10	Leukemia	321/2811 (11.4)		478/2812(17.0)		368/2801 (13.0)		410/2852 (14.4)		374/2821 (13.3)		848/2833 (29.9)		686/2842 (24.1)		1190/2836 (42.0)		977/2827 (34.6)		
11	Hodgkin	93/732 (12.7)		132/730 (18.1)		113/731 (15.5)		104/737 (14.1)		101/734 (13.8)		197/736 (26.8)		144/738 (19.5)		316/739 (42.8)		231/738 (31.3)		
12	NHL	75/527 (14.2)		110/530 (20.8)		90/525 (17.1)		85/531 (16.0)		84/527 (15.9)		133/531 (25.1)		110/530 (20.8)		236/530 (44.5)		160/528 (30.3)		
13	CNS	437/2153 (20.3)		585/2153 (27.2)		455/2145 (21.2)		575/2230 (25.8)		717/2190 (32.7)		771/2213 (34.8)		643/2212 (29.1)		1091/2216 (49.2)		887/2201 (40.5)		
14	Neuroblastoma	55/424 (13.0)		79/425 (18.6)		59/423 (14.0)		72/426 (16.9)		66/423 (15.6)		100/426 (23.5)		107/426 (25.1)		177/424 (41.8)		145/425 (34.1)		
15	Non-Heritable Retinoblastoma	47/407 (11.6)		69/405 (17.0)		51/405 (12.6)		53/407 (13.0)		53/404 (13.1)		109/406 (26.9)		86/406 (21.2)		174/406 (42.9)		132/406 (32.5)		
16	Heritable Retinoblastoma	43/288 (14.9)		68/290 (23.5)		42/288 (14.6)		48/293 (16.4)		49/291 (16.8)		66/292 (22.6)		62/292 (21.2)		111/293 (37.9)		88/292 (30.1)		
17	Wilms	119/939 (12.7)		153/935 (16.4)		132/934 (14.1)		139/945 (14.7)		129/935 (13.8)		244/941 (25.8)		197/941 (20.9)		396/941 (41.9)		276/940 (29.3)		
18	Bone Sarcoma	75/404 (18.6)		97/403 (24.1)		74/401 (18.5)		100/410 (24.4)		114/407 (28.0)		107/409 (26.2)		96/409 (23.5)		199/410 (48.5)		139/408 (34.1)		
19	Soft Tissue Sarcoma	100/697 (14.4)		138/696 (19.8)		120/696 (17.2)		117/702 (16.7)		122/701 (17.4)		179/703 (25.5)		145/703 (20.6)		299/701 (42.7)		229/699 (32.8)		
20	Other	91/839(10.9)		149/838 (17.8)		100/837 (12.0)		115/848 (13.6)		113/842 (13.4)		200/846 (24.6)		167/844 (19.8)		338/844 (41.1)		241/844 (28.9)		
21	Age at Diagnosis																			
22	Mean (range)	7.1(0-14.9)		7(0-14.9)		6.9(0-14.9)		7.0(0-14.9)		7.2(0-14.9)		6.5(0-14.9)		6.5(0-14.9)		6.8(0-14.9)		6.7(0-14.9)		
23	0-4 years	595/4711 (12.6)		837/4707 (17.8)		687/4697 (14.6)		762/4781 (15.9)		768/4736 (16.2)		1361/4764 (28.6)		1136/4767 (23.8)		1983/4761 (41.7)		1555/4752 (32.7)		1
24	5-9 years	403/2710 (14.9)		578/2708 (21.3)		427/2703 (15.8)		497/2754 (18.1)		537/2720 (19.7)		805/2731 (29.5)		644/2734 (23.6)		1216/2739 (44.4)		941/2723 (34.6)		
25	10-14 years	458/2800 (16.4)		643/2802 (23.0)		490/2786 (17.6)		559/2846 (19.6)		617/2819 (21.9)		788/2841 (27.7)		663/2842 (23.3)		1328/2840 (46.8)		1009/2833 (35.6)		
26	Radiotherapy																			

Organizing our Data

1. Selected out the empty rows and columns
2. Had to rename each of our columns
3. Separate values into values into observation and totals
4. Removed percentage from our data

Code to Organise Data

- data <- df %>%

rename(New_Name= "Original Name")

- data2 <- data %>%

separate(Column_Name, into= c("C1", "C2"), sep = "/")

- Filter and select

Select Out empty rows

```{r}
data2 <- data[-c(1,2,3,4,5,8,20,21,25,28,31,34,35,36,37,38,39,40,41,42,43,50,51,52,53,54,55,56,57,63,64,65,66,67,68,69,70,71,72), ]
```

Select Out Empty Columns

```{r}
df = subset(data2, select = -c(X3,X5,X7,X9,X11,X13,X15,X17,X19) )
```

Renmae Columns

```{r}
data3 <- df %>%
  rename(Characteristics= "X1", Activity_Reduction="ROLE EMOTIONAL SCALE", Less_Accomplished="X4", Less_Careful_Work= "X6", Physical_Emotional_Health_VS_Social= "SOCIAL FUNCTIONING SCALE", Health_VS_SocialAct.="X10", Nervousness= "MENTAL HEALTH SCALE", Un_Cheerable="X14", Calm="X16",Downhearted="X18", Happy="X20")
```

Separate values into observations and totals.

```{r}
data4 <- data3 %>%
  separate(Activity_Reduction, into= c("Activity Reduction", "TotalPop"),  sep = "/")  %>%
  separate(Less_Accomplished, into = c("Less Accomplished", "TotalPop2"), sep = "/")  %>%
  separate(Less_Careful_Work, into = c("Less Careful Work", "TotalPop3"), sep = "/")  %>%
  separate(Physical_Emotional_Health_VS_Social, into = c("Phys_Emotional Prob Affectting Social Activity", "TotalPop4"), sep = "/")    %>%
  separate(Health_VS_SocialAct., into = c("Health limits Social Act", "TotalPop5"), sep = "/")   %>%
  separate(Nervousness, into = c("Nervousness", "TotalPop6"), sep = "/")   %>%
  separate(Un_Cheerable, into = c("Uncheerable", "TotaPop7"), sep = "/")   %>%
  separate(Calm, into = c("Calm", "TotalPop8"),sep = "/")      %>%
  separate(Downhearted, into = c("Downhearted", "TotalPop9"), sep = "/") %>%
  separate(Happy, into = c("Happy", "TotalPop10"), sep = "/")
data4
```

Remove the percentages from the total columns.

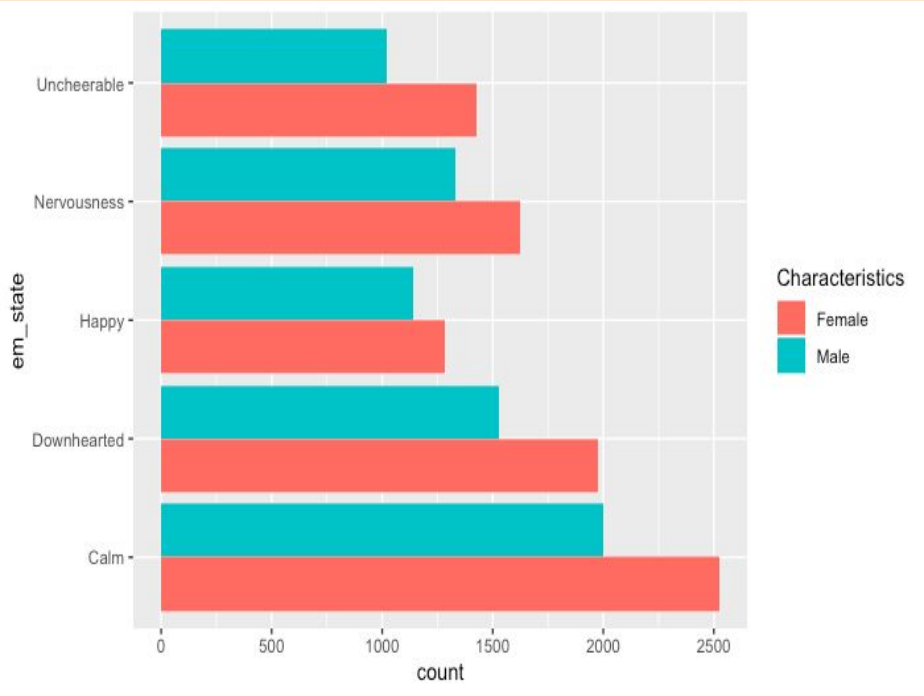
```{r}
data5 <- data4   %>%
  separate(TotalPop, into = c("TotalPop1", "% Reported1"), sep = " ")  %>%
  separate(TotalPop2, into = c("TotalPop2", "% Reported2"), sep = " ")  %>%
  separate(TotalPop3, into = c("TotalPop3", "% Reported3"), sep = " ")  %>%
  separate(TotalPop4, into = c("TotalPop4", "% Reported4"), sep = " ")  %>%
  separate(TotalPop5, into = c("TotalPop5", "% Reported5"), sep = " ")  %>%
  separate(TotalPop6, into = c("TotalPop6", "% Reported6"), sep = " ")  %>%
  separate(TotaPop7, into = c("TotalPop7", "% Reported7"), sep = " ")  %>%
  separate(TotalPop8, into = c("TotalPop8", "% Reported8"), sep = " ")  %>%
  separate(TotalPop9, into = c("TotalPop9", "% Reported9"), sep = " ")  %>%
  separate(TotalPop10, into = c("TotalPop10", "% Reported10"), sep = " ")
data5
```

Characteristics <chr>	Activity Reduction <chr>	TotalPop1 <chr>	% Reported1 <chr>	Less Accomplished <chr>	TotalPop2 <chr>	% Reported2 <chr>	Less Careful Work <chr>	TotalPop3 <chr>	% Reported3 <chr>
Male	610	5222	(11.7)	903	5221	(17.3)	670	5212	(12.9)

Ideas we wanted to explore:

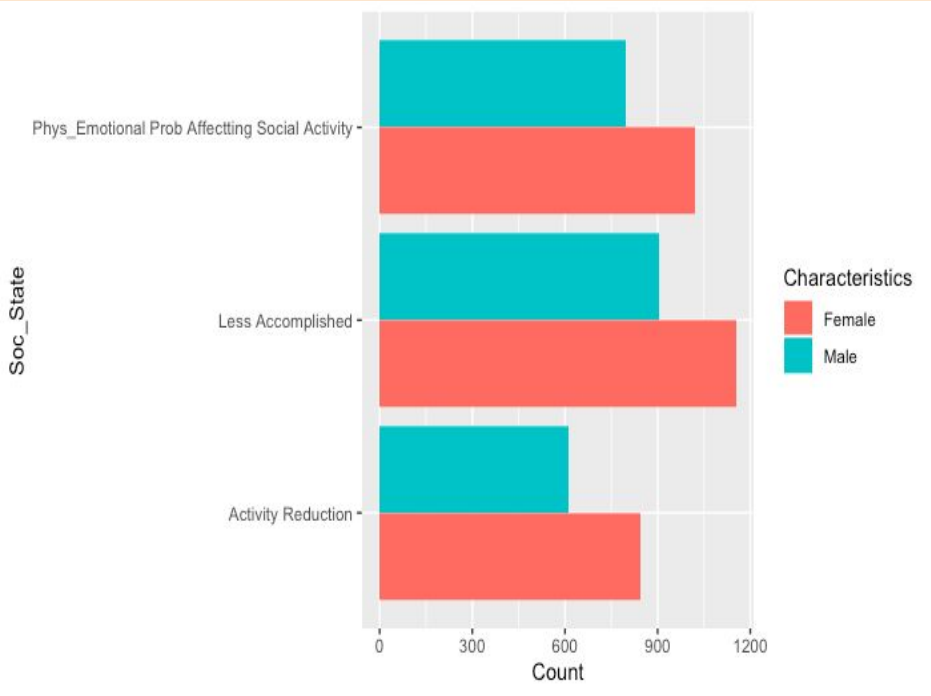
1. Differences between men and women in terms of emotional state
2. Differences in activities between men and women
3. How do the different cancers affect the emotional/social state
4. How age of diagnosis affects them emotionally and socially later in life

Emotional State between men and women



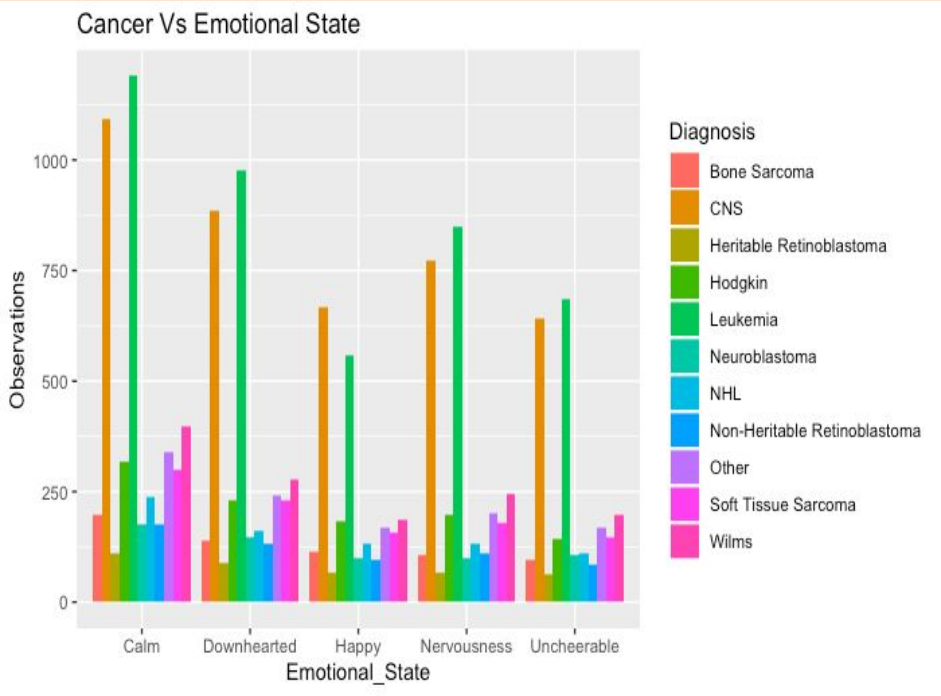
- Women experience more emotional responses than men
    - More women could have been interviewed /diagnosed

Differences in activities between men and women



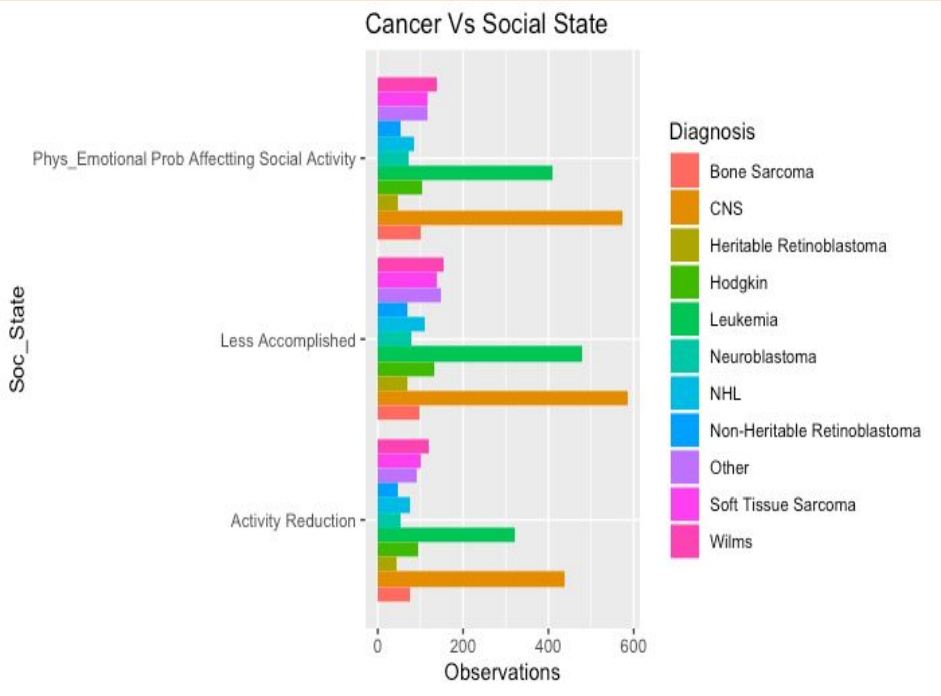
- More women feel a decline in a desire to do activities
- Could be parallel with women experiencing more emotions

How different Cancers affect emotional health



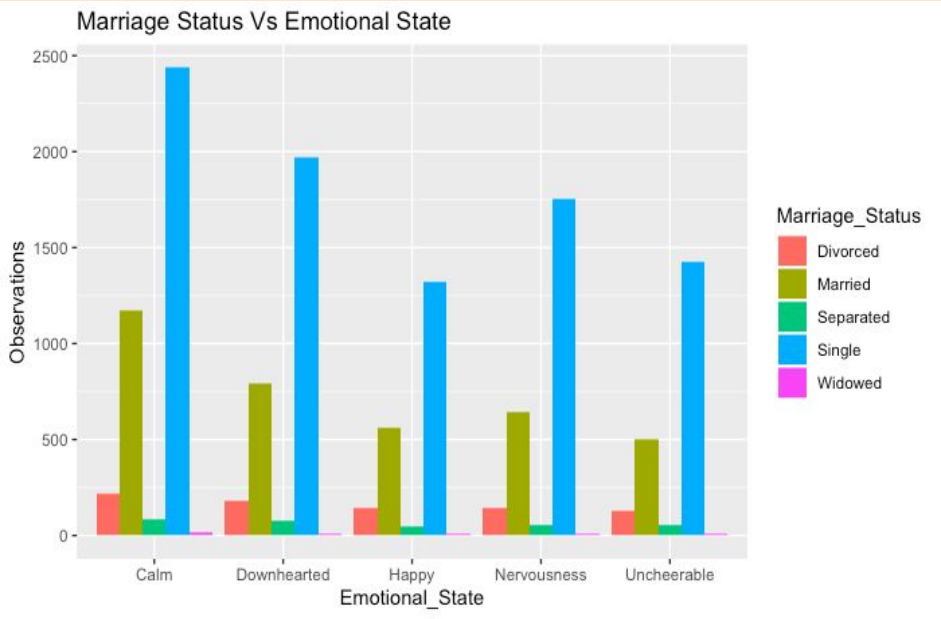
- CNS and Leukemia have the most reporting emotional state
- CNS and Leukemia could be more common cancers causing more people reporting

How different cancers affect one's social state?



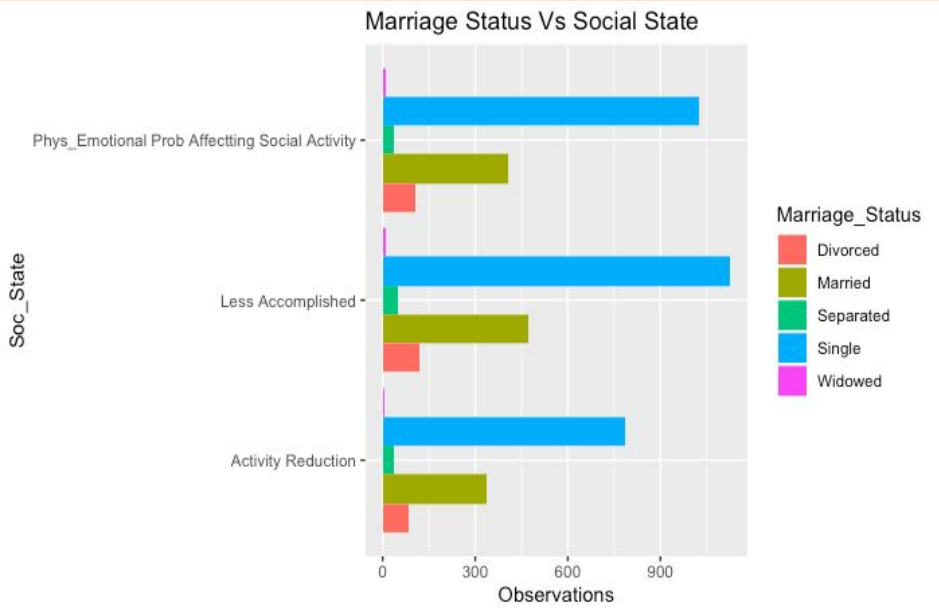
- CNS and Leukemia have most reported

How marriage status of survivors affect emotional state



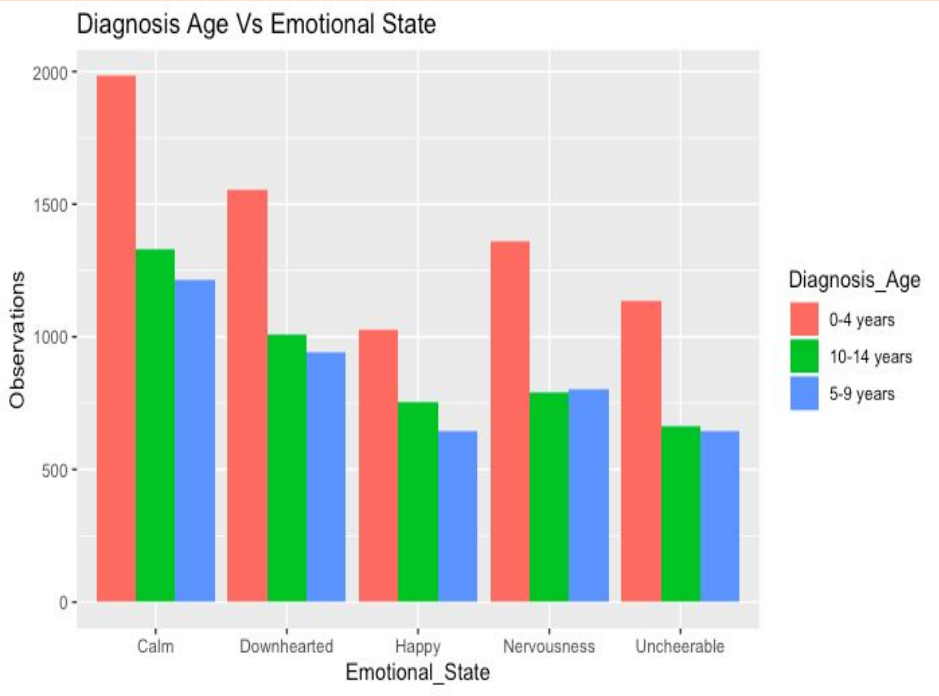
- Single people report most
  - No one to share grief with
- Married report next most
  - joy/stress of having a partner

Does marriage status of cancer survivors affect social life?



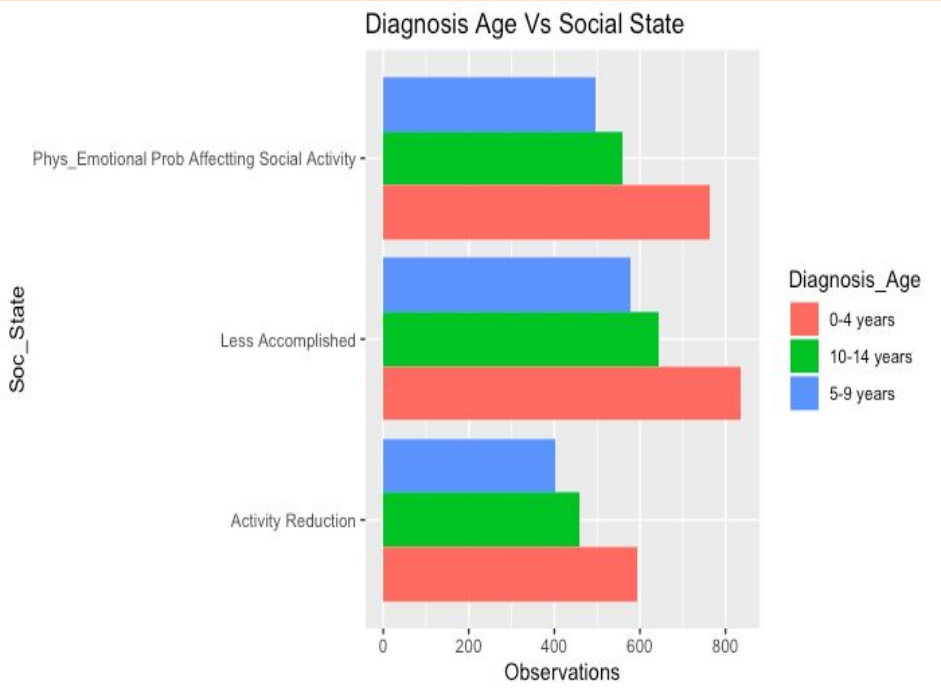
- Single people socialize less and don't feel as accomplished
- Married people report the next most
  - Too busy to go out as much

Did diagnosis age affect current emotional state?



- Those diagnosed 0-4 yrs have most reported
- Those diagnosed 5-9 and 10-14 seem to have similar responses

Did diagnosis age affect current social levels?



- 0-4 has more reporting yes
  - Assumption: can be those interviewed as teens
    - Teens overall don't feel successful
- 5-9 and 10-14 are similar

Conclusion

1. Data is also very vague and inconclusive
    a. Does not tell us who is who (data correlation)
        i. Male/ female vs cancer type
        ii. Age of diagnosis vs age questionnaire completion
    b. Have to make many assumptions about data
2. Questionnaire was completed at ages 16-45+
    a. Other factors could contribute to emotional/mental/social states