

# Technical Interview

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**Lisbon, 20-11-2019**



### 1. Description of dataset

The 'Survey on Mental Health in the Tech Workplace' was filled out in 2014 and 2015 by 1259 respondents and consisted of 26 questions, the original data set can be found [here](#). A first analyses show that in the columns: state, self\_employed, workinterference and comments there are NaN values. Besides that the first exploration of the data shows a strange age distribution with a minimum age of -1726 and a maximum age of 99999999999. So the dataset shall be cleaned. The question 'Is your employer primarily a tech company/organization?' will be discarded while it leaves to much room for doubt.

### 2. The main question of looking at this dataset was exploring the question:

*'Does knowledge of the mental health care benefits and options help people on the payroll to seek help with mental health problems?'*

### 3. Exploration of the dataset

For a more detailed overview see the code.

#### Step 1

After looking at the unique answers for age we see a few unrealistic outliers (1726, 329, 99999999999, -1, 8, 11). These respondents are dropped and not substituted with averages of the dataset while the outliers are to big. As I was curious I had a look if these respondents ever had treatment for mental illnesses (all no) but all had a problem with their mental illness interfering with their work. 1251 respondents left.

#### Step 2

Let's look at the place where the respondents are from. I've divided the countries up in 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> world countries which is an old fashioned and to be discussed division but for the sake of time and while it's not my field of expertise I didn't spend all of my time on it. It turns out most of the respondents are from 1<sup>st</sup> world countries. To get a more 'homogenous group I decided to drop 2<sup>nd</sup> and 3<sup>rd</sup> world. Now there are 1194 respondents left.

#### Step 3

Filter all people out who say they are self-employed or didn't answer the question (they could be unemployed, but we don't know). We now have a number of 1049 respondents.

#### Step 4

Let's look at the gender division. As there are quite some different genders then the usual division of male and female I decided to order them in the way that people identified themselves in the survey. So my measurements are divided in three groups identifies as male (IM, 820 respondents) identifies as female (IF, 221 respondents) or doesn't identify themselves as male or female (Not\_IMF, 8 respondents).

#### Step 5

Now we will look at the age division of the respondents, 90% of the respondents are in the age of 23-45.

The results are:

	Age
<b>Std</b>	7.3
<b>Mean</b>	32.1
<b>Minimum</b>	18
<b>Maximum</b>	72
<b>5%</b>	23
<b>25%</b>	27
<b>Median</b>	31
<b>75%</b>	36
<b>95%</b>	45

#### Step 6

Adjusted the questions with Yes(1)/No(0) answer possibility to 0 and 1. Adjusted the questions with Yes(1), No(0), other possibilities(0). I decided to also rate other possibilities as a 0 while if respondents answer no or I don't know it means that there is no program, or it is not well communicated or they don't dare to ask for it which could resembles less freedom in the company concerning talking about it.

#### Step 7

I've made a WordCloud to make my report more colourful with the comments.

### Step 8

A correlation analyses too see what things are possibly correlated. There is moderate degree of correlation between looking for help for mental illnesses and seeking treatment with a coefficient of 0.37

In figure 1 a trend can be spotted that people who know about care option in the company, or know about a mental health wellness program will search for help earlier. And if they tell their co-workers their supervisor probably knows or vice-versa (0.43) If they think brining up mental health consequences will give them issues they will not bring it up with a supervisor (-0.35) this value is different than for co-workers ( -0.20).

Furthermore there is a difference spotted between bringing up a physical problem compared to a mental health problem (-0.17). Bringing up a mental health problem would have a bigger negative consequence.

There is a moderate degree of (0.36) or relation between bringing up a mental an physical problem in a job interview. But if they think one has a negative consequent there is a chance to believe that they believe bringing up the other one also has negative consequences (0.34).

If there know about the wellness program the chances is bigger that they seek help (0.58). If they know about mental health care options the correlation with seeking help is (0.37). There is furthermore a correlation between wellness program and care options given(0.32 ). Benefits are correlated with care options (0.48), wellness program(0.44), and seeking help (0.47).

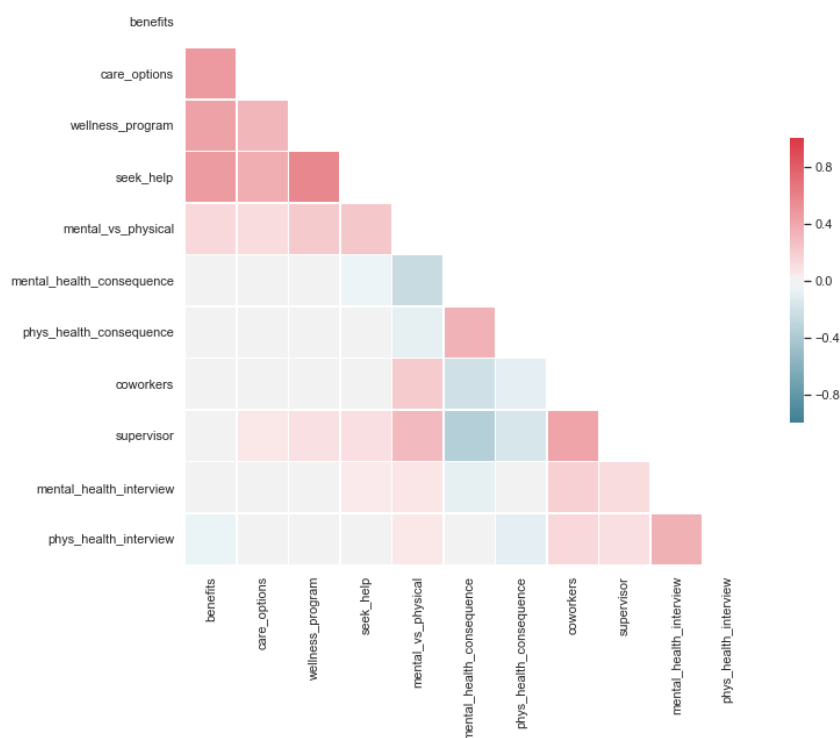


Figure 1. Correlation analyse for mental health survey.

### Step 9

I was curios how many people have work interference because of mental health issues at work. I filtered out all the people who had treatment. Dropped all the NaN's in the no\_treatment and then filtered for all the people who filled out they never had work interference. The mental health of 139 respondents of the 1049 gives them some degrees of issues at work, this is 13.3% of the sample.

#### **4. Results**

*'Does knowledge of the mental health care benefits and options help people on the payroll to seek help with mental health problems?'*

For this respondent group of mostly men in first world countries that are on a payroll and aged between 23 and 45. Still more than 13% of the employees don't look for help with mental health problems although it interferes with their daily work. Communication about the mental health benefits would help them to seek with mental health problems.