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THOMSON REUTERS
[Ghosh, 5(9): September 2018] ISSN 2348 – 8034
DOI- 10.5281/zenodo.1441091 Impact Factor- 5.070

GLOBAL JOURNAL OF ENGINEERING SCIENCE AND RESEARCHES

MEASURING HEALTH STATUS AT WORKPLACE

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ABSTRACT

Data Analytics is the process of examining data sets in order to draw conclusions about the information they contain, increasingly with the aid of specialized systems and software. In this paper we make use of Qlik Sense tool in order to analyse the problem and find solutions in better decision making. Mental health is a state of well-being in which the individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully and is able to make a contribution to her or his own community. Most people spend approximately 60% of their waking hours at work. Stress is high in working professionals because of their nature of work, target, achievements, night shift, over work load. This analysis is likely to be used for the study of the demographic profile of the employees. It is also helpful to assess the level of job stress and quality of life of the respondents and to study in detail the health problems of the employees. Most of the people approximately spend 60% of their time awake at work. Job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. It can lead to poor health and even injury. There are many risk factors for mental health that may be present in the working environment. Most risks relate to interactions between type of work, the organizational and managerial environment, the skills and competencies of employees, and the support available for employees to carry out their work. So, before making any adverse employment decisions regarding an employee suffering from depression, it is imperative that legal counsel is consulted to help prevent unjustifiable termination or discrimination claims.

I. INTRODUCTION

Data Analytics is the science of analyzing data to convert information to useful knowledge. This knowledge could help us understand our world better, and in many contexts enable us to make better decisions.

Data analytics refers to qualitative and quantitative techniques and processes used to enhance productivity and business gain. Data is extracted and categorized to identify and analyze behavioural data and patterns, and techniques vary according to organizational requirements. It involves inspecting, cleansing, transforming, and modelling data with the goal of discovering useful information, suggesting conclusions, and supporting decision-making.

Data analytics initiatives can help businesses increase revenues, improve operational efficiency, optimize marketing campaigns and customer service efforts, respond more quickly to emerging market trends and gain a competitive edge over rivals -- all with the ultimate goal of boosting business performance. Depending on the particular application, the data that's analyzed can consist of either historical records or new information that has been processed for real-time analytics uses

II. THE PROCESS OF DATA ANALYSIS

The analytics process starts with data collection, in which data scientists identify the information they need for a particular analytics application and then work on their own or with data engineers and IT staffers to assemble it for use. Data from different source systems may need to be combined via data integration routines, transformed into a common format and loaded into an analytics system. There are several phases that can be distinguished, described below.

A. Business Understanding: The very first step consists of business understanding. We need to determine business objective whenever requirements occurs first , assess the situation, determine goals and then produce the project plan as per the requirement.

B. Data Exploration: Second step consists of Data understanding. We need to gather initial data, describe and explore and then verify data quality to ensure it contains the data we require.. This is also known as data exploration which is necessary to verify the quality of data collected.

C. Data Preparation: Next come Data preparation. From the data collected in last step, we need to select data as per the need, clean and construct it to get useful information then integrate it and need to format to get appropriate data. Data is selected, cleaned, and integrated in the format finalized for the analysis.

D. Data Modeling : Once data is gathered, we need to do data modeling. For this, we need to select modeling technique, generate test design, build model and assess the model built. This is build to analyze relationships between various selected objects in the data, test cases are built for assessing the model..

E. Data Evaluation : Next come data evaluation where we evaluate the results generated in last step, review the scope of error and determine next steps that need to be performed.

F. Deployment : Final step in analytic process is deployment. Here we need to plan the deployment and monitoring and maintenance, we need to produce final report and review the project. This is also known as reviewing of the project.

Benefits and challenges of data analysis:

Data analysis is a proven way for organizations and enterprises to gain the information they need to make better decisions, serve their customers, and increase productivity and revenue. The benefits of data analysis are almost too numerous to count, and some of the most rewarding benefits include getting the right information for one's business, getting more value out of IT departments, creating more effective marketing campaigns, gaining a better understanding of customers. Handling and presenting all of the data are two of the most challenging aspects of data analysis. Traditional architectures and infrastructures are not able to handle the huge amount of data that is being generated today, and decision makers find it takes longer than anticipated to get insight from the data.

Present working scenario in analytics

Around the World, more than 300 million people suffer from depression, which is leading for cause of disability, many of these people also suffering from symptoms of anxiety. Unemployment is a well-recognized risk factor for mental health problems, while returning to, or getting work is protective. A negative working environment may lead to physical and mental health problems, harmful use of substances or alcohol, and lost productivity.

A healthy organization is defined as one that has low rates of illness, injury, and disability in its workforce and is also competitive in the marketplace. The objective of this paper is to analyze the attitude of companies towards mental health, and examine the frequency of mental health Illnesses among tech workers.

Some of the questions that would be addressed in the analysis are:

- Are mental health illnesses more frequent among Tech workers as compared to non Tech?
- How does the size of company relate to an employer formally discussing mental health?
- How does Age relate to comfort discussing mental health issues with peer

III. DATA VISUALIZATION TECHNIQUES USED

To screen employees by a questionnaire that includes details of health illnesses, family history of illness, diet, lifestyle, exercise and health check-up reports. To assess the severity of stress, measure stress and how stress affects health of IT employees. Analysing& visualizing those attributes which is affecting the health of an employee and providing the solution accordingly.

- This paper proposes a Qlik Sense based solution for the mentioned problem definition in the field of Data Analytics. Qlik Sense is an intuitive self-service data visualization and data discovery application, explore and visualize their data independently. Qlik Sense gives users the ability to create, modify, or expand visualizations one can explore data freely, with just clicks, learning at each step.
- It also proposes a comparative solution cum study report as an outcome of application of R, Tableau and Python.
- Whereas Qlik remains the major tool and technique to come out with a solution. Tableau gives the all most similar input to project, and R and Python add the extra edge from programming point of view

Data visualization experimental results for measuring health status at workplace

The below results shows the Acquiring data from database steps being implemented in the Qlik Sense platform
The report shows the victims and their treatment statistics

Fig 1 : Employee and treatment statistics

The report below depicts the employees work domain, background, work domains.

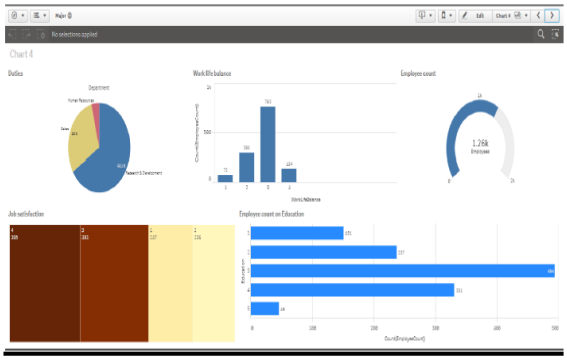

Fig 2 : Employee departments and work life balance

The report here shows the density of employee responses collected across different countries with varying counts.

ISSN 2348 – 8034
Impact Factor- 5.070

Fig 3: Employees distribution

The Bar graph says that most of the people who had worked with at least one (1) company are likely to face the attrition more in number, when compared to the one of who didn't.

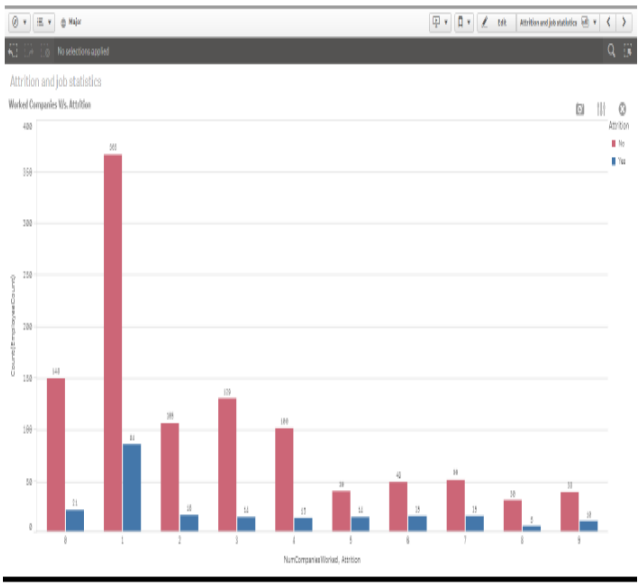

Fig 4 : Worked companies versus Attrition

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Analysis Using R

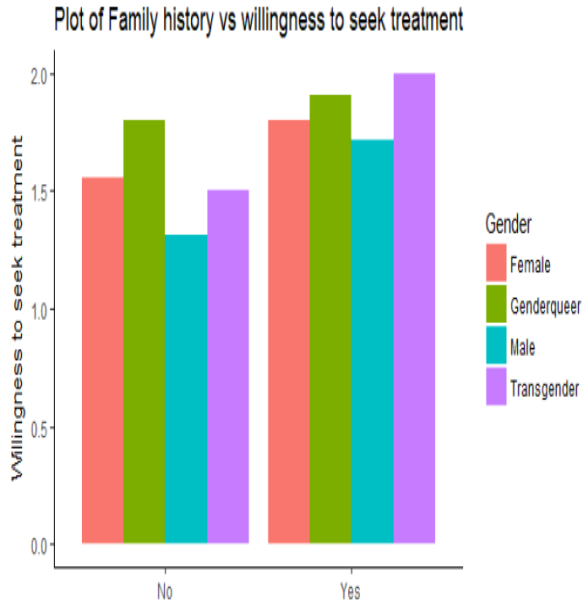

Fig 5 : Family History

Analysis using python

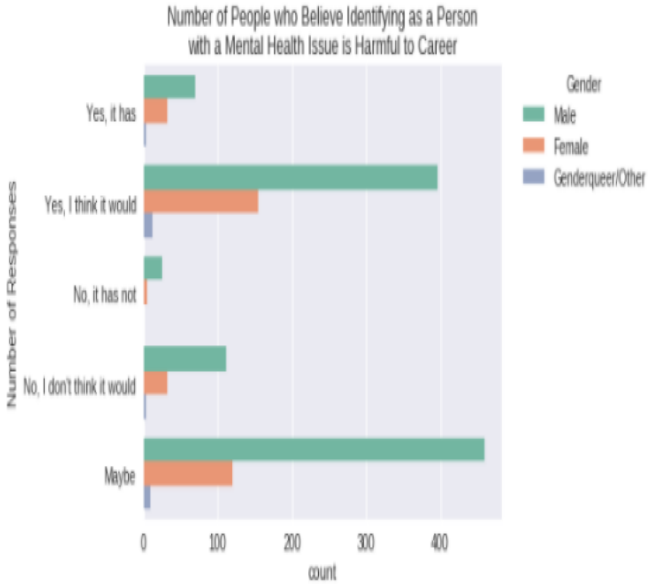

Fig 6: No of Employees who believe having health issues is harmful to career

IV. CONCLUSION

This paper gives the insight about the impact of hectic and stressful work life in the corporate and MNCs which results to the severe health issues. As technology advances, there is also increased stress that is associated with it

called as "technology stress." This brings extra pressure on people to adapt to new advancements and update their knowledge in their field. After performing a cursory exploratory data analysis on the data, there were several interesting findings as one can say under the condition that discussing mental issue with employer would have negative consequences, 67% people wouldn't not talk about this issue with their supervisor and majority of the employees have sought treatment for help. Self-employed respondents are less likely to currently have a mental disorder, where most of the participants fall in the age category between 20 and 35.A respondent's age does not appear to have any influence on their level of comfort in discussing mental health issues with their supervisors or co-workers. as opposed to the ones who do not. To manage stress these people need to play sport, have a hobby or just have a good holiday. Stress score helps us to screen who would be prone to stress related physical illness and care should be taken at the earliest to relive their stress. Healthy employees mean better performance by employee that in turn produce a healthy community.

V. FUTURE ENHANCEMENTS

Creative research and engineering teams are combining their skills to address a wide range of mental health concerns using mobile computing. Some popular areas of app development
include:

- **Self-management Apps,** which means that the user puts information into the app so that the app can provide feedback. Apps for improving thinking skills.
- **Skill-Training Apps,** which are more like games than other mental health apps as they help users learn new coping or thinking skills.
- **Passive Symptom Tracking Apps,** which may be able to analyze these data to determine the user's real-time state of mind.

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